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GENERAL SPECIES  
AND  
ICONOGRAPHY  
OF  
RECENT SHELLS,

COMPRISING

THE MASSENA MUSEUM,  
THE COLLECTION OF LAMARCK, THE COLLECTION OF  
THE MUSEUM OF NATURAL HISTORY, AND THE  
RECENT DISCOVERIES OF TRAVELLERS.

By L. C. KIENER,

CURATOR OF THE COLLECTIONS OF THE PRINCE MASSENA, MEMBER OF THE  
NATURAL HISTORY SOCIETY OF FRANCE, ATTACHÉ TO THE  
MUSEUM OF NATURAL HISTORY OF PARIS, ETC., ETC.

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TRANSLATED FROM THE FRENCH

By D. HUMPHREYS STORER, M. D.

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TO THE COUNCIL OF THE  
BOSTON SOCIETY OF NATURAL HISTORY,

THIS ATTEMPT

*TO FURNISH A FAITHFUL TRANSLATION OF THE GREAT WORK OF KEINER,*

IS RESPECTFULLY DEDICATED,

BY THEIR COLLEAGUE AND FRIEND,

D. HUMPHREYS STORER.



F A M I L Y  
P L I C A C E A  
OF LAMARCK,

TROCHOIDEA  
OF CUVIER.

THE shells which compose this family are marine, not effuse in the aperture, having folds upon the columella. They have long been blended with the VOLUTÆ, the BULIMI, and of late, some zoölogists have also placed them among the AURICULÆ, to which they are closely allied; nevertheless, they should be set apart on account of a distinction quite remarkable, the presence of an operculum. For this reason we should form a distinct family of them, which, according to Lamarck, is composed of only two genera, the TORNATELLA and the PYRAMIDELLA.

*Tornatella.*

A



## GENUS TORNATELLA, LAMARCK.

### THE TORNATELLA.

*Generic characters.* Shell convoluted, ovate, cylindrical, generally transversely striated; aperture oblong, entire, somewhat effuse at its base; one or more folds upon the columella; right lip thin, sharp, never having a varix.

Animal unknown, operculum horny.

Testâ convolutâ, ovato-cylindrica, sæpius transversim striatâ, aperturâ oblongâ, integrâ; margine exteriore acuto. Columellâ basi uni vel pluripliatâ.

Operculo ovato, corneo.

The species of this genus are all marine, and convolute; they are almost always transversely striated; they are generally oval, cylindrical, spire more or less projecting and obtuse; aperture elongated, often narrowed at its posterior part, widened and somewhat effuse at its base; folds of the columella varying from one to three: they are generally thick and obtuse.

#### 1. TORNATELLA FLAMMEA, GMEL. *The Brocade Tornatella.*

(Collect. MASS. LAM.) LIST., Conch., t. 814, fig. 24.

Pl. I, fig. 1.

T. testâ crassâ, ovali, albâ, ventricosâ, transversim striatâ; lineis longitudinalibus undatis, subrubris; spirâ conoideâ; aperturâ oblongâ; columellâ unipliatâ.

Shell thick, ovate, inflated, white, covered with transverse striæ and longitudinal waving reddish lines, often divided into three portions in their length. Spire conoid, canaliculated,

composed of six whirls, the upper ones very approximate, the lowest much larger than all the others. Aperture oblong, widened, dilated at its base; right lip very thin, almost sharp; one fold upon the columella, which is oblique.

Length 15 lines. Width 9 lines.

#### Inhabits

In some specimens the undulating lines are much more distant from each other, more narrow, and continued the whole length of the shell.

#### 2. TORNATELLA SOLIDULA, BRUG. *The Spotted Tornatella.*

(Collect. MASS. LAM.) FAVANNE, Conch., pl. 65, fig. p. 2.

Pl. I, fig. 2.

T. testâ crassâ, ovato-oblongâ, cylindricâ, transversim striatâ, maculis oblongis, fuscis et rufulis; spirâ conico-acutâ; aperturâ oblongâ; columellâ buplicatâ, plicâ majore bilobâ.

Shell thick, ovate, oblong, cylindrical; with slightly impressed, transverse striæ, traversed by oblong, brown spots, and often intermixed with other reddish spots, especially upon the whirls. A narrow, white band, surrounds towards the middle, the lowest whirl. Spire conical, pointed; aperture oblong, narrowed, a little compressed towards its upper third, and dilated at its lower part. Two folds upon the columella, separated by quite a deep, semicircular groove, the larger, two-lobed.

Length 15 lines. Width 6 lines.

Inhabits the Indian Ocean.

This species, common in collections, differs much from the preceding, in its cylindrical form, and the two folds upon the columella, one of which is two-lobed; there exists a variety, the shell of which is invariably smaller; it is white or red, with yellowish spots upon all the whirls; the first fold of the columella is also more visible than in the common variety.



3. **TORNATELLA FASCIATA**, BRUG. *The Banded Tornatella.*

(Collect. MASS. LAM.) LIST., Conch., t. 835, fig. 58.

Pl. I, fig. 3.

Testâ ovato-conicâ, tenui, subpellucidâ, rufo-rubente, albo-bifasciatâ ; spirâ exsertâ, acutâ ; columellâ uniplicatâ.

Shell conical, ovate, thin, sub-transparent, reddish, covered with numerous close striæ ; those situated at the base of the lowest whirl, are deeper and more separated than the others ; a white band exists at the base of each whirl, and two others, very conspicuous upon the lowest whirl. Spire projecting, pointed ; aperture oblong, narrowed at its upper part ; one fold upon the columella.

Length 11 lines. Width 5 lines.

Inhabits the Mediterranean, and the European Atlantic.

This species is very remarkable for the delicacy of its striæ, and for the white bands, which distinguish it from all other species.

4. **TORNATELLA BULLATA**, NOBIS. *The Bubble Tornatella.*

(Collect. MASS. LAM.) LIST., Conch., pl. 714.

Pl. I, fig. 4.

Testâ parvâ, oblongâ, cylindricâ, albo-diaphanâ, transversim tenuissimè striatâ ; spirâ brevi, conicâ ; aperturâ oblongâ, angustâ ; columellâ uniplicatâ.

Shell small, oblong, cylindrical, of a diaphanous white ; very fine and very close transverse striæ cover the whole of the shell. Spire short, conical, composed of five whirls, the sutures of which are canaliculated. Aperture oblong, narrow in its two upper thirds, and dilated at its base. Lip thin, round, and notched at the upper part at its union with the left lip. One fold upon the columella.

Length  $4\frac{1}{2}$  lines. Width  $1\frac{3}{4}$  lines.

Inhabits the Indian Ocean.

This pretty little species, which is quite common, is very remarkable for its diminutiveness; its transparent white color, and its extremely delicate striæ; its form approaches that of several BULLÆ.

5. **TORNATELLA NITIDULA**, LAM. *The Shining Tornatella.*

(Collect. MASS. LAM.) Encyclop., pl. 452, fig. 2, a, b.

Pl. 1, fig. 5.

Testâ crassâ, ovato-oblongâ, albo-roseâ, nitidulâ; spirâ brevi, acutâ; columellâ buplicatâ.

Shell thick, ovate, oblong, smooth, of a rosy white color, transverse striæ varying in number at the base of the lowest whirl; spire short, pointed at its summit, composed of six or seven very approximate whirls; aperture oblong, narrow, a little effuse at its base; right lip thickened upon its interior, smooth and sharp throughout its whole extent. Two folds upon the columella, which is thickened; of these two, the lower fold is the larger, and is sub-quadrangular, the upper, which is much smaller, is separated from the other, by a semicircular, very deep groove.

Length 9 lines. Width 5 lines.

Inhabits the seas of the Isle of France, and of New Holland.

This species is very common. It is distinguished from others by its short and very slender spire, and by the magnitude of its last fold.

## GENUS PYRAMIDELLA, LAMARCK.

### THE PYRAMIDELLA.

Testâ turritâ, conico-elongatâ, epidermide destitutâ. Aperturâ integrâ, semi-ovalis; labro acuto. Columellâ basi productâ, subperforatâ; plicis tribus transversis. Operculum corneum.

Shell turreted, conical, elongated, slightly striated, destitute of epidermis. Aperture entire, semi-oval, widened at its base, lip inferiorly sub-perforated, and with three transverse folds. Operculum horny, thin, ovate, elongated, elements very fine, and folds oblique.

Animal having a head surmounted by broad, rather long tentaculæ, formed like a pointed horn, and open on the side. The mouth situated in a flattened, wide, dilated, and quite deeply two-lobed muzzle, separated from the foot by a groove. The respiratory cavity open throughout the whole length of the mantle, bearing on its right margin a long and narrow branchia. The heart has a direction from right to left. The rectum and uterus are attached to each other along the branchiæ, and terminate in an ear-shaped gutter, produced by the margin of the mantle. The mucous follicles line the upper wall of the cavity. The foot is round, without a marginal furrow, passing down before in form of an ear-shaped shield, and bearing posteriorly a membranous operculum, with laminæ destitute of a spire, which possesses one or two notches to slip upon the folds of the columella.

*Pyramidella.*

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Quoy and Gaimard, to whom we are indebted for a knowledge of these animals, suppose that they have the sexes united in an incomplete hermaphroditism; these writers have not been able, satisfactorily, to examine the organs of generation.

The general color of the body of these mollusca, is of a dull white. The operculum only, and the edge of the mantle are yellowish.

Lamarck, in his *Histoire des Animaux sans vertèbres* (1801), first formed the genus PYRAMIDELLA from the *TROCHUS dolabratus* of Linnæus, and the *BULIMUS terebellum* of Bruguière; he placed it between MELANIA and AURICULA, considering the species which composed it, as fresh water shells. Some years after he suppressed this genus, and again re-established it in the compendium of his course in 1811; but during the interval elapsing between these two periods, De Roissy and Montfort had retained and admitted it, one in Sonnini's Buffon, the other in his *Conchyliologie Systématique*; and when, in 1811, Lamarck, after a more mature examination, coincided with them, or rather acknowledged the justness of his first opinion, he approximated the genus TORNATELLA to the PYRAMIDELLA, and thence formed a family under the name of *PLICACEA*; the analogies which he found between these two genera, by blending them, induced him to place them near to the *MACROSTOMÆ* and the *SCALARIÆ*; this little family has appeared established so naturally, that it has remained almost unmodified, in the principal systems published since that time.

Cuvier, in the first edition of his *Règne Animal*, placed the shells of this genus in the family of the *AURICULÆ*; this decision was followed by Férussac, in his *Tableau systématique*; but in the second edition of the *Règne Animal*, its illustrious author concurs with the opinion of Lamarck, in bringing these two genera into the family *PECTINIBRANCHIATA*, among the *MELANIÆ* and the *JANTHINÆ*.

Blainville, *Traité de Malacologie*, p. 453, arranges them among his *AURICULÆ*, and has not adopted the division *PLICACEA* of Lamarck; but, afterwards, becoming acquainted with the operculum of the animal of the TORNATELLA, this writer judged that it ought no longer to hold the place which he had at first assigned it, without, however, pointing out another. In fact,

this mollusk differs essentially from the animal of the *AURICULA*, by the presence of the operculum, which we have just mentioned, and by the situation of the pulmonary organ, which is a true branchia; nevertheless, in other respects, the characters of the shell have the greatest analogy with some specimens of this last family.

Sowerby, in his *Genera*, proposes to bring back to the *PYRAMIDELLA*, several species of shells, some of which are comprised among the *AURICULÆ*; I am not of the opinion of this author; these species do not appear to me to unite the characters observed in the genus which I have just described. As to the number of folds, which he supposes to vary, I have always found the same in all the specimens I have been able to examine; and the folds upon the columella, being a distinctive character in this genus, it does not appear consistent to admit shells which are destitute of them. Besides, what appears to me unanswerably to establish an exact distinction between these different shells, those of the family *PLICACEA* are marine and operculated, while the others, on the contrary, live in fresh water, and are destitute of an operculum.

The species of the genus *PYRAMIDELLA* are not numerous. The shells are generally quite small, of an elegant form, elongated, marked with more or less deep spots. The animals are very timid. No species has as yet been met with in our seas. They appear to live in those of India, and upon the coasts of Africa.

1. **PYRAMIDELLA TEREPELLUM**, LAM. *The Gimlet Pyramidella.*

(Collect. MASS. LAM.) LIST., Conch., t. 844, fig. 72.

Pl. I, fig. 2, et fig. 3 pointed.

*P. testâ conico-turritâ, umbilicatâ, lævi, albâ, lineis rufis cinctâ; columellâ recurvâ; labro intus lævigato.*

Shell conical, turreted, polished, elongated, slightly transparent, white, beautifully adorned with transverse reddish or brown bands, three in number upon each whirl, and four or five upon the lowest, which is more inflated; the middle band

is always narrowest ; the others are wider and deeper colored. Spire pointed, composed of from ten to twelve distinct whirls, smooth, slightly convex. Aperture ovate, sub-rotund at its base, and generally marked within, with very prominent ridges continued upon some specimens even to the edge of the right lip, which is sharp ; columella slightly arcuated, recurved around the umbilicus ; it is furnished at its base with three folds, the upper of which is more prominent than the others. Umbilicus small, cylindrical, narrow and deep.

Length 16 lines. Width 7 lines.

Inhabits the American seas among the Antilles.

We find in this species some variations of color. Some shells are violet with all the bands brown, others are of a dull white, with narrower and less numerous lines. With Deshayes we think the *PYRAMIDELLA dolabratum* a very old *terebellum* of Lamarck ; for it differs from that only by the ridges which are found at the internal part of its left lip, so that if the edge of the lip happens to be broken, this edge has the appearance of being denticulated ; it is this accident alone, frequently occurring, which has caused the separation of these two species ; for in the specimens remaining perfect, the folds are seen only within the aperture. Very old specimens have also the folds of the columella strongly marked. In other respects there is a perfect similarity in the characters of the two species.

2. **PYRAMIDELLA VENTRICOSA**, QUOY et GAIM. *The Swollen Pyramidella*

(Collect. MASS. LAM.)

Pl. I, fig. 1.

P. testâ ovato-turritâ, ventricosâ, apice acutâ ; anfractibus convexiusculis, lineis longitudinalibus rufescentibus vel fusciscentibus undulatim ornatis, ultimo ventricosiusculo ; aperturâ ovatâ, albidâ.

Shell ovate, turreted, polished, pointed at its summit, indistinctly striated in its whole length ; spire composed of ten slightly convex whirls, the last a little swollen and whitish ; all

are adorned with longitudinal, undulated, reddish, or brown lines, quite near together; wide, brown spots often partially cover them, a line equally brown passes over each whirl; upon the lowest are found three others, which sometimes form quite large bands of the same color. The sutures are slightly canaliculated. Aperture ovate, whitish, marked likewise, with a few brown lines towards the depth of the cavity, exhibiting pretty distinct furrows. Right lip thin, terminated below by a small canal, at its union with the columella, which is slightly arcuated, with three folds at its base, the first very prominent. Umbilicus indistinctly marked. From the base juts out a round fold, which is seen to turn in a spiral manner in the umbilicus. Operculum ovate, membranous, its laminae not spiral, having one or two notches to receive the folds of the columella.

Length 15 lines. Width 6 lines.

Inhabits the island of Vanikoro, where it is found in great abundance.

It is to Quoy and Gaimard that conchologists owe a knowledge of this species, which is remarkable for the distribution of its longitudinal lines. I suppose that the *PYRAMIDELLA fasciata* of Ferussac must belong to the species I have just described, but in an injured state; upon that specimen, transverse bands only are perceptible.

3. **PYRAMIDELLA PPLICATA**, LAM. *The Plaited Pyramidella.*

(Collect. MASS. LAM.) LIST., pl. 577, fig. 32, a.

Pl. I, fig. 4.

P. testâ ovato-oblongâ, solidâ, longitudinaliter plicatâ, albâ, punctis rufis seriatim cinctâ; plicis lævibus; interstitiis transversè striatis; ultimo anfractu spirâ turgidulâ brevior.

Shell ovate, elongated, solid; spire pointed, composed of ten or eleven slightly convex whirls, distinct and separated by a narrow scaffolding accompanying the suture, which is somewhat

undulated. The lowest whirl is almost as large as all the others together: all are ornamented with numerous projecting longitudinal folds or ridges, extremely regular, often terminated at their summit by a small tubercle; between the spaces of the ridges are observed fine transverse striæ. The coloring of this shell is whitish, it is ornamented with reddish spots arranged in transverse series, almost always united, and forming three bands upon the upper whirls, and five upon the lower; upon this is often seen also, a large brown and irregular blotch. Aperture ovate, elongated, narrow, and slightly oblique. Right lip thick, white, forming a little gutter at the base; columella imperforate at its lower extremity, oblique, bearing three unequal folds: the first more prominent, is horizontal, thin, and sharp; the two others are oblique and smaller.

Length 11 lines. Width 4 lines.

Inhabits the seas of the Isle of France, and the Isle of Vanikoro.

This very beautiful little PYRAMIDELLA, is remarkable for its longitudinal ribs.

4. **PYRAMIDELLA CORRUGATA**, LAM. *The Wrinkled Pyramidella.*

(Collect. MASS. LAM.)

Pl. II, fig. 6.

P. testâ elongato-turritâ, gracili, longitudinaliter plicatâ, albâ, prope suturas punctis luteis raris pictâ; ultimo anfractu spirâ multò brevior.

Shell elongated, turreted, slender, white, with some scattered yellowish spots; spire pointed, formed of nine or ten slightly convex whirls, the surface of which is covered with longitudinal folds, also convex, very distinct, smooth, numerous, regular, prolonged even to the summit of the whirls, and accompanied with some small, scattered, yellowish spots; numerous compressed transverse striæ are found between the folds. The suture is linear. Aperture narrow, ovate, elongated, slightly narrowed at its extremities; it forms at its base a little depres-



sion in an oblique canal. The lip is thin and arcuated. The columella is imperforate at its base; it is slightly arcuated, thin, furnished with three folds, the first more strongly marked than the others, which are a little oblique.

Length 9 lines. Width 4 lines.

Inhabits the seas of the Isle of France.

This little shell and the preceding, have so constant an analogy, that they should be considered as the same species; that which we have just described, is a variety of the *plicata*, differing from it only in its coloring, which is wholly white, and by its narrower and slenderer form.

5. **PYRAMIDELLA MACULOSA**, LAM. *The Spotted Pyramidella.*

(Collect. MASS. LAM.) LIST., pl. 844, fig. 72 b.

Pl. II, fig. 5, et 5 a, young.

P. testâ turrîto-subulatâ, longitudinaliter striatâ, albidâ; maculis punctisque rufis sparsim pictâ; anfractibus numerosis; ultimo spirâ multò breviorè.

Shell elongated, turreted, brilliant, pointed at its summit, slightly widened at its base, of a grayish white color, sometimes inclining to red, spotted with numerous brown spots arranged in transverse series, three in number upon each whirl, and five upon the lower; upon its surface are seen large, brown, dull, and irregular spots; sometimes the points which adorn the shell are united, and form undulating, longitudinal lines; spire formed of fifteen or sixteen slightly convex, distinct whirls; suture linear, shallow. The lowest whirl is short, and not perforated at the base. Aperture small, sub-ovate, and at its depth are seen indistinct grooves; it is terminated at its base by a small, narrow, and shallow groove. The columella is somewhat arcuated, and presents three unequal folds towards the base: the first is most projecting, and runs almost horizontally; the two others are small, oblique, and parallel. Right lip arcuated, thin, sharp, slightly convex.

Length 20 lines. Width 7 lines.

Inhabits the Pacific ocean, the Isle of France, the Isle of Vanikoro.

Young specimens of this species are very slightly striated, and of a reddish color; undulating lines and brown spots, distributed here and there, cover the shell. Some specimens are of a still redder color, and the points upon the shell are then more numerous, and of a deeper tint.

6. **PYRAMIDELLA GRACILIS**, BROCCHI. *The Slender Pyramidella.*

(Collect. du Museum.) BROCCHI, Conch., subapp., pl. 6, fig. 6, *a-b*.

Pl. II, fig. 7.

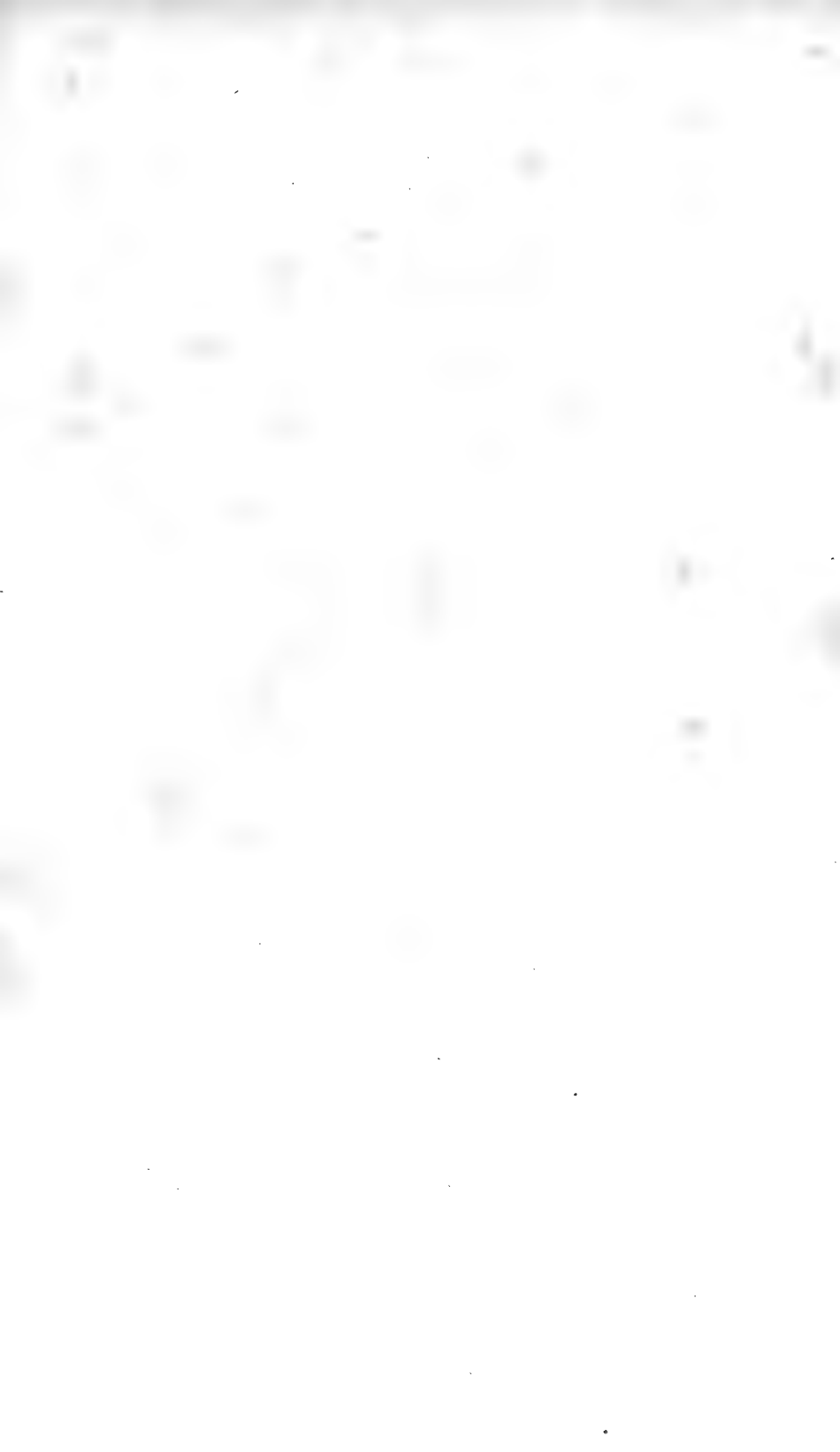
*P. testâ cylindricâ, angustâ, apice acutissimâ, nitidâ, albidâ; spirâ elongatâ; anfractibus convexiusculis, frequentibus; suturâ simplici, depressâ; aperturâ parvâ, oblongâ.*

Shell cylindrical, narrow, very pointed at its summit, slender, turreted, brilliant, whitish, slightly striated longitudinally; spire elongated, and formed of fifteen or sixteen somewhat distinct, approximate, convex whirls; the lowest divided at its middle by a transverse, narrow, shallow stria. Suture simple, indistinctly channeled and flattened. Aperture small, oblong, a little narrowed at its extremities. Columella almost straight, a little turreted at its base, and provided with three folds, the first of which is more marked. Right lip thin, sharp, obliquely sinuous in the middle of its length; its lower extremity extends a little beyond the columella, and forms in this part a shallow contraction or little gutter.

Length 10 lines. Width 3 lines.

Inhabits

This pretty little species, one of the most cylindrical of the genus, has some resemblance in its form to the *PYRAMIDELLA maculosa*. Ferussac refers this living species to the fossil shell figured by Brocchi, t. 2, p. 282, tab. 6, fig. 6, under the name of *TURBO gracilis*, and which is found at Saint Just, near Valterra, in the south of France.





## GENUS THRACIA, LEACH.

### THE THRACIA.

*Generic characters.* Shell ovate, oblong, transverse, inequivalve; the beaks strongly recurved, that of the right valve notched to receive that of the opposite side; the right valve more convex and larger than the left; the hinge has upon each valve a horizontal and narrow nympheal callosity, which sometimes expands into a spoon-shaped projection, and contains an internal ligament, which is prolonged, and slightly issues outwardly into the corselet. Two muscular impressions, the anterior depressed, elongated, contracted towards its middle, and united to the posterior, which is rounded, by a palleal impression, strongly notched at its posterior part.

Testâ ovato-oblongâ, transversalis, inæquivalvis; natibus fortiter recurvatis, dextræ valvæ emarginatâ nate, quæ alterium excipiat; dextra valva ventricosior majorque sinistra: Cardio variabilis; in utrâque valvâ callum nymphæale, horizontale, angustum, aliquando dilatatum cochleâriforme; Ligamentum internum, externè prominulum. Duæ impressiones musculares; anterior depressa, producta, contractâ ad medium, junctaque posteriori; posterior rotundata impressione palleali, posticè largiter emarginatâ.

The animal is oval, thick, enveloped in a very delicate mantle, diaphanous upon its sides, through which is distinctly seen the branchiæ and the abdominal mass; the edges are swollen, lobed, and united in almost the whole of the circumference, so that they present only three openings; the first is found at the anterior and lower third of the median line, and

forms a slit for the passage of the foot; the two others are seen at the posterior part, and give passage to two distinct tubes or tracheæ, cylindrical, fleshy, approaching each other towards their origin; these two tracheæ can be extended far out of the shell; the lower is larger and longer, and serves to supply the branchiæ with water: the upper, which is nearer to the hinge, is shorter and straighter; it serves for the excrementitious evacuations; it is furnished, at its upper and internal extremity, with two small tubercles, formed like teats, and armed with small papillæ, whose use is probably to prevent the entrance of small foreign bodies. This trachea has no communication with the lower; it is prolonged, moreover, into the interior of the cavity, where it is continued by a delicate, transparent valve, which extends even to the opening of the anus. These tracheæ can be drawn into the portion of the mantle which surrounds them, the covering of which is loose, and gives this part the appearance of a vulva: it is surrounded by a tendinous, solid, and elastic ring; a similar apparatus exists for the passage of the foot. The abdominal mass<sup>1</sup> is voluminous, and is terminated by a small, oval foot, compressed, fringed in form of a crest, and sub-anterior. The branchiæ are voluminous, unequal upon the same side, and united in the whole of their length, at the upper surface; at the lower and internal surface corresponding to this part, they are divided into two, by a very distinct furrow; they are thick, long and wide, of a slightly oval form at the posterior part, and truncated obliquely at the anterior part; the lower being longer; the upper is adherent at its middle part in the two anterior thirds near the union of this part with the lower; this connexion is indicated at the upper part by a slight ridge. The posterior third of the two branchiæ is floating and free, and is continued as far as the entrance of the siphon. The lamellæ are fine and very contiguous, undulated, and a little oblique

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<sup>1</sup> In the specimen we have before us, the abdominal mass is very voluminous, and the ovary is seen beneath its covering.

from behind, forwards. The mouth is small, transverse, oval; the lips are simple, and the two pair of labial appendages are straight and elongated.

The retracting muscle of the trachea of the right side is, of an oval form, and is continued upon the abdomen by becoming thin and uniting with the mantle; that of the left side is of an irregular, oval form, and adheres by its internal surface to a membranous, elastic fold which arises from the internal opening of the large trachea, enlarging as it continues, and terminates by a semicircle which exceeds by many lines the retractor muscle of that trachea; there, it joins the mantle. This apparatus, so singular and so remarkable, does not exist in any other bivalve mollusk at present known. It is supposed that the animal, by contracting it, employs it to throw out the water in the cavity of the trachea with more force.

Leach first established this genus; several species were already known, but were placed by some authors among the MYÆ. Lately, this genus has been better observed, and Deshayes, considering it as a type, has established many others, which he has united in a single family, under the name of *Ostéodème*. The shells which belong to this genus so much resemble the MYÆ, the ANATINÆ and the PERIPLOMÆ, that it is very difficult not to admit it into the family Myaria of Lamarck, for it appears to make the step from the Mactraceæ to this last family. They have also much resemblance by their exterior form, which is inequivalve, to the CORBULÆ. Their shell is generally quite thin; the valves are united together by an internal ligament placed in the spoon-shaped cavities, where these exist; the ligament extends slightly into the corselet; the valves gape only at the posterior side. The two muscular impressions which they present interiorly, are unequal, the anterior is elongated and narrow towards the middle, and the posterior is rounded; they are united by a palleal impression pretty deeply notched posteriorly.

Deshayes has given such accurate descriptions of several species of this genus, that we prefer to borrow from him, adding only some new observations.

1. **THRACIA CORBULOIDES**, DESHAYES. *The Corbula-formed Thracia*

(Collect. MASS.) MONTAGU, pl. 1, fig. 1.

Pl. II, fig. 1.

Th. testâ ovato-transversâ, griseâ, inæquivalvi, inæquilaterâ, bisinuatâ, umbonibus magnis, inferiore emarginato.

Shell ovate, oblong, transverse, very inequivalve, inequilateral, very much inflated, marked with irregular lines of increase, entirely white, and covered with a grayish brown epidermis; the beaks of the valves very large, protuberant, cordiform; the right valve, which is the larger, has its beak notched at its summit to receive the beak of the left valve. The cardinal edge is delicate; it presents upon its posterior side a nympha, which projects within the valves, and which receives a ligament partly internal and partly external. The anterior extremity of the shell is obtuse, rounded; the posterior extremity truncated: this side is bounded outwardly by a very prominent obtuse angle, which extends obliquely from the beak to the lower part of the shell. Interiorly the valves are white; two muscular impressions are seen, very much separated, the anterior of which is long and narrow; the posterior is rounded; they are united by a palleal impression, deeply notched posteriorly.

Length 2 inches 5 lines. Width 1 inch 8 lines.

This species, according to Montagu, may be considered a borer, and is found in large quantities at Plymouth, imbedded in rocks: it is this which probably occasions that diversity of form which exists in this species. It is found also in the sand in the harbor of Falmouth. Finally, it is found, also, in the Mediterranean, where it appears to be larger than upon the English coast, and where it is commonly found in the mud.<sup>2</sup>

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<sup>2</sup> Dr. A. A. Gould, of this city, found a specimen of this shell at Chelsea, in this state. Col. Totten, of Newport, Rhode Island, has met with



2. **THRACIA PUBESCENS**, LEACH. *The Downy Thracia.*

(Collect. MASS. LAM.)

Pl. II, fig. 2.

Th. testâ ovato-oblongâ, subdepressâ, inæqualivi, æquilatârâ, albo-griseâ, anticè rotundatâ, posticè truncatâ et angulatâ; cardine foveolis internis instructo.

Shell ovate, oblong, transverse, equilateral, inequivalve, slightly inflated, of a reddish white color, covered with a browner shagreened epidermis, marked with irregular and more or less numerous striæ of increase. The beaks are short, and that of the right valve is notched at its summit to receive that of the left valve. The valves are pretty thick, rounded at the anterior, and truncated at the posterior side; the same side is separated from the upper surface by an obtuse angle, which arises from the posterior extremity of the beaks, and which descends obliquely as far as the lower extremity of the shell. The cardinal edge is rather thin, and destitute of teeth; it presents at the posterior side of the beaks an internal hollow, short and thick. The hollow is oblique and bounded outwardly by a little ridge, in which is inserted an external ligament, whilst another strong ligament is situated in the hollows of the valves. Interiorly they are white, smooth and polished. There exists upon the anterior side a muscular impression, long and very narrow in its middle, very near the edge; the posterior muscular impression is rounded and pretty large.

Length 3 lines. Width 1 inch 10 lines.

This species, described by Lamarck under the name of *ANATINA myalis*, is pretty common in the British seas, principally

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many fragments of shells upon the shores of that state. In my cabinet is a single valve, which I picked up several years since upon the coast of Maine, at Prout's Neck, a few miles from Portland,—so that we may infer it inhabits the whole coast of New England.—TR.

upon the coasts of England, in the sands of Falmouth and Plymouth; it is found also in the Mediterranean.

3. **THRACIA PLICATA**, DESHAYES. *The Plaited Thracia.*

(Collect. MASS. et LAJOIE.)

Pl. II, fig. 3.

Th. testâ ovato-oblongâ, transversâ, æquilatêrâ, inæquivalvi, depressâ, transversim plicatâ, albâ, diaphanâ.

Shell ovate, oblong, transverse, equilateral, inequivalve, inflated, beaks small, that of the left slightly notched. The valves are white, delicate, and diaphanous, rounded upon the anterior side, truncated obliquely upon the posterior side: the side is bounded outwardly by an obtuse angle, which extends from the beak to the lower and posterior edges. The exterior surface presents some very prominent transverse folds, rounded, undulating, more or less numerous; the cardinal edge is straight, and presents upon each valve a small horizontal hollow, triangular, not very thick, in which is confined a small internal ligament, which shows itself a little externally; internally the valves are white, and transversely plaited. The anterior muscular impression is very superficial, elongated, and very narrow; the posterior rounded and small: it is united to the anterior by a palleal impression, deeply notched posteriorly.

Length 1 inch 6 lines. Width 1 inch.

Country unknown.

This species is rare in collections; it is very remarkable for its whiteness, and for the very prominent transverse folds upon the whole of the shell.

4. **THRACIA PHASEOLINA**, NOBIS. *The French-bean Thracia.*

(Collect. MASS. LAM.) MONTAGU, pl. 1, fig. 2.

Pl. II, fig. 4.

Th. testâ ovato-oblongâ, transversâ, æquilaterâ, inæquivalvi, albâ, diaphanâ, lævi; latere posteriore brevi, angulato, truncato.

Shell ovate, oblong, transverse, equilateral, inequivalve, beaks small; that of the left, slightly notched. The valves are white, diaphanous and smooth, indistinctly marked with striæ of increase, rounded at the anterior side, strongly truncated at the posterior side; the side is bounded outwardly by an obtuse angle, pretty prominent, extending obliquely from the beak to the lower part of the shell. The cardinal edge is thin, and without teeth; it presents upon the posterior side the beaks with a small, internal, short, triangular hollow, in which is attached a small internal ligament which is apparent externally. The valves are white and shining, internally. The anterior muscular impression is elongated, the posterior is rounded, and is united to the anterior by a palleal impression, deeply notched.

Length 1 inch 4 lines. Width 11 lines.

Inhabits the road of Cherbourg, in the Channel, the coasts of England, at Falmouth; the Mediterranean. This same species has been found in the bay of Sea-dogs, but much larger.

This species was known by Petiver, and has been described by Lamarck under the name of *AMPHIDESMA phaseolina*; it approaches in its form the *THRACIA pubescens*, but its lightness and its size materially distinguish it; it differs also from the *plicata*, for that has very strongly prominent folds, while in the *A. phaseolina*, the striæ of increase are scarcely apparent.



## GENUS HARPA, LAMARCK.

### *THE HARPA.*

Shell ovate-oblong, more or less inflated, generally pretty thin, enamelled, provided with parallel, longitudinal, inclined and acute ribs; the last whirl much larger than all the others together; spire slightly elevated; aperture large, oval, dilated, strongly emarginated inferiorly, and without canal; right lip bordered by the last rib; columella smooth, simple, nearly straight, pointed at the base.

Testa ovato-oblonga, plus minùsve ventricosa; costis longitudinalibus parallelis, compressis, inclinatis, acutis; spira brevis. Apertura longitudinalis, infernè emarginata; canali nullo. Columella lævis, basi plana et acuta.

Animal having a flattened head, which supports a pair of pretty long, thick, and conical tentaculæ, with a small protuberance at their base, internally, where the eyes are situated. Mouth simple, surrounded by a muscular margin, and furnished with a small, slender and pointed trunk. The organ of excitement elongated, cylindrical, situated on the right side. Locomotive organ very large, very broad at the anterior part, which is ear-shaped, and distinguished by a deep emargination upon each side; the posterior extremity caducous, and destitute of an operculum.

This genus, instituted by Lamarck, was included by Linnæus in his *BUCCINUM*, already so numerous. It contains but few

*Harpa.*

A

species, and the shells are of a very agreeable and elegant figure, adorned with beautiful colors, varying in their distribution, and are particularly remarkable for the oblique ribs, whose arrangement has probably contributed to the establishment of the generic name. Linnæus, and the authors who had preceded him, blending in one group, species, which a more careful investigation has since divided, gave them the name of *BUCCINUM harpa*; nevertheless, the Harps have a peculiar appearance, which makes them very different from other genera. Lamarck, after examining the characteristics of these shells, forthwith separated them from the *BUCCINA*, to arrange them in his family *Purpuriferæ*, between the *DOLIUM* and *CASSIS*; and this classification has been generally observed by authors who have succeeded him, throughout the methodical arrangements which they have successively proposed. Cuvier, in his *Regne Animale*, placed this genus between the Tuns and *Purpuræ*, in his family of the *Buccina*. De Blainville, in his *Malacologie*, included it (between *BUCCINUM* and *DOLIUM*) in his third group, which contains the ampullaceous shells, and makes part of his second family *Entomostomata*.

So that these writers, and those who have followed them, retain for the Harps very nearly the situation which Lamarck had assigned them. Lately, a knowledge of the *animal* has only confirmed the truth of those observations, which the study of the *shell* had suggested to him.

M. Reynaud, surgeon-major of the corvette *La Chevette*, upon his return from a voyage round the world, first published in the fifth volume of the *Memoires de la Société d'Histoire Naturelle*, the anatomy of the animal, and its different peculiarities. But we are particularly indebted to the learned observations of Quoy and Gaimard for a more perfect knowledge of its organization, and of all its anatomical parts, which have been figured in the *Atlas of the Voyage de l'Astrolabe*, pl. 42.

The external form of the animal of the *HARPA* greatly resembles that of the *DOLIUM* and the neighboring genera, in the conformation of the head and that of the tentaculæ; but it appears to be separated somewhat from the *BUCCINUM* by its digestive organs, although the differences which are observed between

these two genera are inconsiderable; they consist in the extremity of the trunk, which, in the animal of the Harps, is destitute of lips bristling with spines, and in the conformation of the stomach, which is less developed than that of the BUCCINUM.

The fleshy part of this mollusk is very strong, and very large; its foot is enormous, thick, and extended considerably out of the shell; it cannot be wholly contained within the aperture, before which, by contracting itself, it forms a margin, as has been already pointed out by Born (*Musæum Cæsaris Vindobonensis*, pl. 254).

This author seems to have known the particular circumstance of the rent of the foot. The foot is as if divided into two portions. The anterior broader, arcuated, ear-shaped, with a marginal furrow, and joined to the posterior part by a kind of neck. This latter, more extended, is somewhat oval, pointed, and slightly inflated above, without any appearance of operculum. The three authors who have described this animal, point out a singular peculiarity in it: when it is violently disturbed, it breaks off the posterior extremity of its foot, in order to withdraw itself more completely within its shell. It is supposed that this part has the power of reproducing itself after the rupture.

All the external parts of the animal are strongly colored with spots and plates of a brownish red, intermingled with other yellowish spots. The middle portion is frequently crossed by a brown band.

The respiratory tube is long, rather large, continued to and terminating in a large pulmonary cavity, the use of which is to assist respiration. Upon one side of this cavity are two pectinated branchiæ, one large, and the other small; upon the opposite side are situated, in female specimens, the rectum and the uterus; and in the male a deferential canal and a penis. On this same side are fixed, at the upper part of the cavity, the mucous follicles, composed of seven or eight transverse plates. The tongue is small, slender, pointed, fleshy, without any trace of a ribbon of horn; it is contained in an incurved sheath, and rarely protruded from it. The stomach is very narrow, and does not differ in size from the rest of the intestinal canal. The rectum is pretty large, terminated by an anus slightly narrowed and

pointed. The liver, which is voluminous, forms a great part of the convoluted portion, and extends almost throughout the spire. The heart and the auricle are very much developed, contained in a pericardium, and situated at the base of the branchiæ. The cerebral ganglion is broad and flattened; it sends out numerous nervous filaments which ramify over the whole body. The penis of the male is considerable, like that of the *Buccina*, and situated upon the same side.

This genus, very remarkable for the beauty and freshness of the shells which it contains, belongs mostly to the Indian seas, where they are pretty common, and upon the shores of certain islands of the tropical coasts. They are found in the crannies of rocks, or upon pebbly bottoms, whose great irregularities render the means of fishing for them ineffectual. Quoy and Gaimard think that they usually inhabit rapid and deep waters.

The animal is very active, but surrounded by numerous enemies; at the approach of danger it enters its shell, like the other mollusca, but cannot entirely draw in its foot; and the part which remains without, firm and muscular, almost closes hermetically the aperture of the shell, and thus protects all the soft parts. Nevertheless, if the danger which threatens it should be imminent, as a last resort, it contracts with much force this portion of the foot exposed to peril, breaks it and rids itself of it. In this situation it presents to its enemies only the back of its covering, being able to apply its aperture to the ground. It is probable it owes its power of rupturing its foot to the presence of a large canal containing water which exists in this part. This is the opinion of Quoy and Gaimard.

In consequence of this an operculum would be useless to it, for it would be liable to be carried away by the rupture of the foot. Therefore, it is not possessed. These observations are due also to the philosophers we have previously quoted.

Some system-making authors have sought to establish on the operculum, general rules of analogy between the groups; but this character is too superficial to serve for the great divisions, or the approximation of groups into families. Many shells, provided with an operculum, are united by all the other characters which distinguish them, to species, in which the operculum, on



the contrary, does not exist; this circumstance only, constitutes the difference between them; whilst remote from them are found other shells, possessing alike an analogous operculum, but dissimilar to the first in every other respect. Thus the Harps and the Tuns have such striking resemblances to the *Buccinum*, that we have always seen them placed near this last genus by all authors who have described them; nevertheless, the first two of these genera have no operculum, whilst, on the contrary, it is invariably found in the other.

We may then infer, from these remarks, that the character of the operculum cannot, as we have said, constitute a general rule of classification. It will serve, with more certainty, for some divisions of genera; and the differences of the opercula of some shells may assist in establishing between them an accurate measure of affinity or remoteness.

The animals of the Harps appear to subsist upon soft and delicate substances. Lamarck, in his *Histoire des Mollusques*, has divided this genus into eight species; but, after the example of Deshayes, withdrew from the list of species the *imperial harp*, which is only a pretty constant variety of the *ventricose harp*; this may be proved by a specimen in the collection of the prince Massena, which is half *imperial harp* by its very contiguous ribs, and half *ventricose harp* by others more distant. The *conoid harp* appears also to be only a variety of this last, merely a little more elongated. The *striated harp* belongs also to the *ventricose harp*, and should be considered as only a very young specimen of this species.

It is a general observation, that all the young shells of this genus have longitudinal striæ, more or less numerous, but always more approximate; they have often, also, pretty apparent transverse striæ, distinctions easy to be observed in the shell of which we have just spoken.

The other species pointed out by Lamarck appear to be well distinguished; all agree in the common character of presenting exteriorly parallel, compressed, inclined, and acute longitudinal ribs; in all, too, the upper extremity of each rib forms a small detached sharp point.

The male shells are known by three essential distinctions; their shell is thicker, smaller, and more slender.

The Harps are found in abundance in the regions of the Isle of Sunda, of New Holland, the Isle of France, and in the Red Sea.

**1. HARPA VENTRICOSA, LAM.** *The Ventricose Harp.*

(Collect. MASS. LAM.) BONANNI, Recr. 3, fig. 185.

Pl. I, fig. 1 and 1 a young; pl. II, fig. 2, variety with compact ribs.  
Pl. III, fig. 4, var. *Conoidalis*; pl. IV, fig. 7, young, striated.

H. testâ ovato-ventricosâ; costis latis, compressis, purpureo tinctis, apice mucronatis, infrâ mucronem subunidentatis; interstitiis albidis, maculis arcuatis spadiceo-fuscis notatis; columellâ purpureo et nigro maculatâ.

Shell oval, ventricose, pretty large, polished, ornamented with more or less distant, wide, compressed, smooth, parallel ribs, inclined towards the base, of a pale rose color, most commonly with quadrangular deep brown spots. These ribs are pointed at their summit, and a little below these form a slight keel, caused by small asperities. The interstice between the ribs is slightly striated longitudinally; it is whitish or violet, adorned with brown or reddish spots, forming regular festoons throughout its whole length; there are found also upon the surface of the shell two or three bands, sometimes replaced by large spots, which alike surround it. The middle band is always most apparent. The spire is short, composed of six whirls slightly flattened above; aperture large, reddish, terminated at base by an oblique, shallow emargination, marked within with brown spots or bands; right lip bordered externally by the last rib; columella smooth, brilliant, almost covered with very dark brown spots.

Length 4 inches. Width 3 inches.

Inhabits the Indian Seas, at New Guinea and Port Dorey; the Isles of France and Bourbon.

Of late several authors, and particularly Deshayes, have brought back to this species shells of the same genus which had been improperly separated by Lamarck. The first which we shall notice is the *imperial harp*, pl. 2, fig. 2, which, however, at first sight, appears to differ essentially from the *ventricose harp*; but, as we have remarked of several species of genera which we have already described, the gradual affinities of a series of specimens naturally bring back this shell to the common type, although at first it appeared remote from it. We shall point out, as a striking example, a specimen which presents upon one of its sides the same ribs as those of the type species, and upon the other those of the variety, (see our pl. VI, fig. 9). Thus then, this differs from the *ventricose harp* by the ribs being more contracted, and nearer each other; but, constant in all other points of analogy, it ought, undoubtedly, to be reunited to this last species.

This variety with close-set ribs is generally whitish; the number of ribs varies in such a manner that even 30 and 35 have been counted, whilst not more than from 12 to 13 are seen upon the *ventricose harp*. These ribs are then much narrower, and much more approximate, with five or six interrupted, reddish yellow zones. It is particularly in the young specimens of this variety, that the ribs are nearer each other, the transverse striæ more apparent and more prominent. The young of the *ventricose harp* are of a paler color, duller, and sometimes reddish; we give a figure of it, pl. IV, fig. 7. Lamarck has established them as a species under the name of *HARPA striata*.

Another variety of this same shell has more distant ribs, and is remarkable for two large reddish bands, at each extremity of the last whirl. The interval between these bands is of a much paler color. The interstice of the ribs is adorned with reddish longitudinal lines, undulated and slightly festooned at the two extremities, (see our pl. VI, fig. 10).

We give also, pl. III, fig. 4, the *conoidal harp* of Lamarck, which presents all the characters of our type; the only observable differences consist in the form, which is a little more conoidal, and in the ribs, the three last of which are wider, whilst the others are, on the contrary, narrower than those of the *ventricose*

*harp.* The shell is generally whitish, with bands on the ribs of a rose-colored tint; some specimens are colored more brightly, and have the ribs alternated with brown, rose-colored, and white lines. The interstices are filled with arched yellowish or brown spots.

2. **HARPA ARTICULARIS**, LAM. *The Articulated Harp.*

(Collect. MASS. LAM.) GUALTIERI, Test., pl. 29, fig. D.

Pl. II, fig. 3.

H. testâ ovatâ, subventricosâ, griseâ; costis angustis distantibus albo nigroque articulatis maculatis; spirâ exsertiusculâ, muriculatâ.

Shell ovate, ventricose, rather thin; spire conical, indistinctly muricated; the ribs pretty narrow, distant, slightly flattened, marked by transverse brown lines, articulated and winding like light festoons; between these lines appear white and violet spots. Interstice between the ribs grayish. The longitudinal waved lines which are there seen, are strongly arched, and very contiguous to each other, they form species of transverse bands, at the origin of which exists a triangular brown chestnut-colored spot; the sharpest angle of this spot is continued sometimes into the interstices, in the middle of the narrow and white bands formed by the bars to the number of twelve upon the last whirl. The brown bars are less conspicuous. Aperture large, ovate, of a violet color upon the edge, and reddish within; through these colors are perceived the transverse brown bands. The columella is polished, covered over its whole length by a large brown chestnut-colored spot.

Length 3 inches. Width 2 inches.

Inhabits the Indian Ocean.

This shell appears sufficiently distinct from the *ventricose harp*, for us to retain it as a distinct species, as was done by Lamarck. The coloring of the ribs is pretty constant in the distribution of the transverse bands, which are always very apparent and very near each other.

3. **HARPA NOBILIS**, LAM. *The Noble Harp.*

(Collect. MASS. LAM.) LIST., Conch., pl. 992, fig. 55.

Pl. III, fig. 5.

H. testâ ovatâ, subventricosâ, griseo-albo et fusco variâ, maculis amplis purpureo-sanguineis pictâ; costis latiusculis; lineis nigris capillaribus transversim fasciculatis; spirâ submuricatâ.

Shell ovate, a little ventricose; spire slightly elongated, submuricated, the whirls flattened above, surmounted by ribs which are continued; these are from 12 to 14 in number, becoming broader as they approach the lip; they are ornamented with transverse black lines, dividing them into unequal spaces, the coloring of which is less deep than that of the interstices of the ribs; these last are of a grayish or brown tint, of little variety, with wide spots, which sometimes form bands of a bloody purple. Undulating lines in zigzags or white festoons, and brown meanderings between them. The upper band of the last whirl oftentimes becomes more apparent from the brightened or even whitish shade of its color; aperture ovate, of an orange white; right lip marked by brown spots internally, and bordered externally by the last rib which is denticulated in a portion of its length. The columella slightly arched at the base, almost covered in its length by three very distant violet or brown spots.

Length 3 inches. Width 22 lines.

Inhabits the Indian Ocean.

This species is pretty constant in its characters; nevertheless, it happens that some specimens have a paler coloring, and the festoons are perceptible only by intervals, and have then the appearance of pretty irregular bands. The specimen represented, pl. 6, fig. 11, is of a brownish red. Others are of a clear red.

*Harpa.*

B

4. HARPA MINOR, LAM. *The Elongated Harp.*

(Collect. MASS. LAM.) LIST., Conch., pl. 994, fig. 57.

Pl. IV, fig. 6, and fig. 6 a, var.

H. testâ ovato-oblongâ, griseâ, fusco-maculosâ ; costis angustis distantibus nigro-lineatis ; lineis geminatis ; spirâ exsertiusculâ.

Shell ovate, oblong, rather small, slightly elongated, whirls of the spire distinct, mucronated, more elongated than in the preceding species. The lower whirl has eleven or twelve narrow and slightly elevated longitudinal ribs, the surface of which, of a yellow ground, is crossed transversely by a great number of very fine blackish lines, which approach alternately, two by two. The intervals of the ribs are marked with very thin and delicate longitudinal striæ, and with brown and whitish lines undulating in bars. Sometimes one or two whitish bands are observed upon the last whirl. The aperture is ovate, alike whitish, with several small brown bands upon the edge of the lip which, externally, is covered by the last rib. The columella is almost straight, marked with small brown spots.

Length 2 inches. Width 1 inch.

Inhabits the Indian Ocean, at Port Dorey in New Guinea.

This species is very distinct from others in size, which is invariably smaller, and by its peculiar coloring, much less variable than the other harps. Some specimens are shorter and of a whitish color. In such the three or four last ribs grow broader towards the last lip. The substance of the shell also appears thicker, which would lead us to think that the difference belongs to that of sex. The animal of the *elongated harp* differs slightly from others in its coloring, only it is covered with a tint of a more intense red, and the circumference of the foot is not marked with spots of a reddish brown, like that of the *ventricose harp*.

5. **HARPA ROSEA**, LAM. *The Rosy Harp.*

(Collect. MASS. LAM.) MART., Conch., pl. 119, fig. 1094.

Pl. V, fig. 8 and fig. 8 *a*, young.

H. testâ ovatâ, subventricosâ, tenui griseolâ ; costis angustissimis distantibus ; interstitiis albidis, roseo maculatis, lineis rubro-nigris, confusiusculè undulatis ; columellâ carneâ et violaceâ.

Shell ovate, ventricose, rather thin ; spire conical, slightly muricated ; the four whirls which are near the edge are the widest. The ribs are flat, oftentimes narrow, almost all marked at their base by four or five conical denticulations, and at the upper extremity of the last whirl, by four small mucronated tubercles, which appear again upon the whirls of the spire. The coloring of the ribs is of a light gray ; they are circled by rose-colored or white bands in bars ; at their external edge, which is slightly projecting, is drawn a brown or blackish longitudinal stroke, interrupted by small horizontal white rays. The interstices of the ribs are of a grayish pearl color, waved with fine strokes in double bars, which are laced with strokes of a red brown. Rose-colored spots are likewise seen between the ribs. Aperture ovate, of a pale yellow, with several bands of a dark violet. The right lip is ornamented by the last rib, which is undulated throughout its whole length. The columella is polished, arcuated towards the base, and has two or three spots of a bluish violet.

Lenth 3 inches 3 lines. Width 2 inches 2 lines.

Inhabits the seas of Japan.

Lamarck only knew young specimens of this species, which, generally, are strongly colored by large rose-colored spots covering almost all the surface. Latterly, Lesson has established, as a new species, under the name of *HARPA Rivoliana* (Zoölogical Illustrations, pl. 36), a specimen, which we consider a very old

shell of the *H. rosea*. Lamarck possessed another which he has marked in his collection as a variety of this last species, and which is, without any doubt, an intermediate link between the young and adult, (see our pl. 5, fig. 8, 8 a).



## GENUS BUCCINUM, LINNÆUS.

### THE BUCCINUM.

*Generic character.* Shell ovate or ovate-conical. Aperture longitudinal, sometimes subrounded, deeply emarginated at its base, and without canal. Columella simple, not flattened, swollen above, and often covered with a wide and flattened calcareous callosity, of more diaphanous substance. There sometimes exists a fold at the base of the columella. Right lip quite thin, oftentimes recurved, and forming a margin on the exterior; operculum horny, unguiform, of subconcentric elements, and oftentimes marginal.

Testa ovata vel ovato-conica; apertura longitudinalis, aliquando subrotundata, fortiter basi emarginata; canali nullo; supernè turgida; labrum tenue, aliquandò recurvatum et marginatum; opercula cornea unguiformis, elementis subconcentricis, et sæpè marginalis.

Animal oval, the foot almost always considerable, shielded or two-lobed before, emarginated behind, bearing an operculum; mantle simple, provided with a branchial siphon, projecting, thick, very long and dorsal, issuing from the emargination at the base of the shell. Head rather thick, furnished with two conical, middling-sized tentaculæ, supporting the eyes upon the outer side, (sometimes the eyes do not exist, but this case is extremely rare). Mouth provided with a retractile trunk, armed with hooks. Sexes separate; the exciting organ of the male considerable, without an exterior furrow at its base.

*Buccinum.*

A

This genus, originally established by Linnæus, comprised so large a number of shells, and so intimately allied to each other, that the authors who first attempted to separate and class them, could not do it without difficulty. Bruguière was the first to begin a great reformation in this genus; but remaining incomplete, his work was left to be finished by Lamarck; and it is to that illustrious philosopher, always clear and exact in his classification, that we finally owe the accurate arrangement of the shells of the genus which we are about to describe. He distributed a great number of them into different genera; the remainder still presented difficult distinctions. Lamarck, in his examination, has had reference only to the shell, and especially to the very distinct emargination, without canal, at its base, which is particularly remarkable. Lamarck, whose comprehensive and lucid glance so readily seized upon the mutual relations of genera to each other, found the *NASSA* and the *BUCCINUM* so similar, that he has reunited them in his last work, establishing only a simple division between them.

Under the genus *NASSA* are comprehended species generally rather small, the aperture more rounded, having a wide and flattened callosity upon the columella, sometimes almost entirely covering the shell. Lately, M. Quoy has studied the particular conformation of the animals of the *NASSÆ*, that is to say, their foot, ear-shaped before, forked behind, and their small operculum often ear-shaped; and he thought that they should be united into a separate division, and even form a new genus. He further rests this opinion upon another observation worthy attention, the sprightliness of their motions; but until all the animals of the *NASSÆ* and *BUCCINA* shall be well known, it will be difficult to establish accurately this division, and to determine what shells shall remain among the true *BUCCINA*. The *NASSÆ* have such striking relations to these in their organization, and particularly in the form of their shell, that we think it impossible, until new observations shall be found to confirm the opinion of Quoy, not to follow the order established by Lamarck. The species of this genus run into each other in so insensible a manner, that we have been unable to form well-defined groups among them.

The Buccina are carnivorous animals, provided with a cylindrical trunk, susceptible of being much elongated or of being concealed entirely within the body; this trunk is armed at its extremity with beaks, which enable the animal to pierce the shell of other mollusca, upon which it preys.

The sexes are separate. The shells of the males are generally smaller, and less inflated than those of the females. The males are provided with a very large exciting appendage, which, in a state of repose, is situated under the right edge of the mantle.

The eggs are generally united together; they are sometimes driven and transported by the waves to distances far removed from the places where they had been deposited; whence the same species of BUCCINUM are often found in very different climates.

The BUCCINA are met with in all seas, especially upon rocks, where they are in large numbers; the warmest climates furnish the species most brilliant in coloring. Some species serve for food to the inhabitants of many countries, particularly upon the shores of the Channel.

1. **BUCCINUM UNDATUM**, LINN., GMEL. *The Waved Buccinum.*

(Collect. MASS. LAM.) LISTER, Conch., t. 962, fig. 14, 15.

Pl. II. fig. 5.

B. testâ ovato-conicâ, ventricosâ, transversim sulcatâ et striatâ, striis longitudinalibus tenuissimis decussatâ, longitudinaliter plicatâ, albidâ vel griseo-rufescente; plicis crassis obliquis undatis; anfractibus convexis; aperturâ albâ aut flavâ.

Shell ovate-conical, ventricose, white, yellowish or reddish, with a bright brown epidermis; ridges and transverse striæ very prominent, forming with the much less apparent longitudinal striæ, a species of net-work; nine whirls to the spire, convex and crossed by oblique folds, thick and waved; aperture white, very large, ovate, deeply notched at its base; right lip arched.

Length 3 inches 6 lines. Width 2 inches.

Inhabits the seas of Europe, especially upon the coasts of the Channel, where it is very common, and where the animal is eaten.<sup>1</sup>

This species is very variable in size; also in its form, which is more or less inflated; oftentimes the oblique folds are not apparent, and sometimes the transverse striæ have wholly disappeared; the epidermis then, is of a deep brown. It varies also in its coloring, which in some specimens is of a bright yellow or violet, surrounded with one or several reddish bands.

2. **BUCCINUM VENTRICOSUM**, NOBIS. *The Ventricose Buccinum.*

(Collect. MASS.)

Pl. III, fig. 7.

B. testâ ovato-conicâ, ventricosâ, transversim tenuissimè striatâ, striis longitudinalibus obsoletè decussatâ, albidâ vel griseo-rubente, fusco-nebulosâ; anfractibus convexis, ultimo spirâ longiore; aperturâ rotundatâ, albidâ aut rufescente.

Shell ovate-conical, ventricose, of a reddish white, marked with undulated brown spots with red edges; epidermis of a bright brown; very fine and very close transverse striæ, crossed by very fine and slightly apparent longitudinal striæ; spire elongated, pointed; eight convex whirls to the spire, traversed sometimes by slightly prominent longitudinal folds; aperture very effuse, dilated outwardly and widely emarginated at its base; right lip strongly arcuated.

Length 2½ inches. Width 4 lines.

Inhabits the North Seas.

This handsome species, of which Prince d'Essling possesses

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<sup>1</sup> This shell is also found along the entire coast of New England.—Tr.

several specimens of different ages and sexes, is brought, I think, from the Northern Seas. It appears to me to be very nearly like the *BUCCINUM Humphreysianum* of Bennett, (*Zoölogical Journal*, vol. I, p. 398, tab. 22). Nevertheless, I have been unwilling decisively to unite it to that, because it wants several of the characters assigned by M. Bennett to the individual which he has described. That which I have figured, has the lowest whirl of the shell much shorter and more ventricose; the striæ, which entirely cover the shell, are closer; this also does not exhibit the bands which appear upon the lowest whirl of the *BUCCINUM Humphreysianum*. Among the number of specimens which I have examined, was found a young one which approached nearer to the figure of the *BUCCINUM Humphreysianum*. I suppose that the difference which exists between these two species, is caused only by age or sex.

3. *BUCCINUM LAMARCKII*, NOBIS. *Lamarck's Buccinum*.

(Collect. MASS.)

Pl. III. fig. 6.

B. testâ ovato-conicâ, lævigatâ, nitidâ,] luteo-rufescente, flammulis spadiceo-rufis; anfractibus supernè subangulatis, sùpemis obsolete plicatis; aperturâ ovatâ, lævi, albidâ; labro margine acuto.

Shell ovate-conical, elongated, smooth, shining, of a reddish yellow color; scattered over with longitudinal flames of a brown red; a transverse band of the same color surrounds the base of the shell; spire elongated, composed of eight whirls slightly angular at their upper part, and very slightly convex; the first whirls are plaited longitudinally; aperture ovate, whitish, strongly emarginated at its base, lip thin; columella smooth and yellowish.

Length 3 inches. Width 1 inch 3 lines.

Inhabits <sup>2</sup>

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<sup>2</sup> I have in my cabinet, a specimen of this shell, which was found on the shore at Santos, Brazil, by my brother, Mr. Robert B. Storer.—Tr.

This species is very distinct from others in its size, in its elongated form, the absence of striæ upon the shell, and the aperture being much more ovate.

4. **BUCCINUM FUSIFORME**, NOBIS. *The Spindle-shaped Buccinum.*

(Collect. MASS.)

Pl. V. fig. 12.

B. testâ ovato-conicâ, luteo-rufescente, tenui, nitidâ subpellucidâ, transversim longitudinaliterque minutissimè striatâ; anfractibus convexis, ultimo spirâ longiore; aperturâ subrotundatâ, lævi, luteo-rufescente; labro margine subreflexo.

Shell ovate-conical, of a reddish yellow, thin, shining, translucent, covered with very fine transverse longitudinal striæ, very close and hardly apparent; eight convex whirls to the spire; aperture ovate, rounded, of a reddish yellow, emarginated at its base; right lip recurved and white; columella white and elongated, which gives to the shell somewhat the appearance of a spindle.

Length 2 inches. Width 1 inch.

**Inhabits**

This species much resembles the *BUCCINUM ovum* of Bennett, (*Zoölogical Journal*, vol. I, p. 366, tab. 13, fig. 9). But that is represented of a more globular form, while the specimens I have examined of the *BUCCINUM fusiforme* are more elongated, and the whirls of the spire more detached.

5. **BUCCINUM GLACIALE**, LINN., GMEL. *The Northern Buccinum.*

(Collect. MASS. LAM.)

Pl. II. fig. 4.

B. testâ ovato-conicâ, longitudinaliter subplicatâ, transversim sulcatâ, fulvo-rubente; anfractibus carinato noduliferis, ultimo carinis tribus cincto; labro repando, margine reflexo; aperturâ rotundatâ.

Shell ovate-conical, of a reddish fawn color, covered with

transverse furrows; spire composed of seven or eight whirls, traversed by thick, noduled folds, somewhat oblique, and much less apparent upon the lowest whirl, which is encircled by one or two very apparent convex keels, which rarely exist upon the upper whirls. Aperture whitish, rounded, deeply emarginated at its base; right lip white, reflected, and slightly emarginated at its upper part; columella white and waved.

Length 2 inches 9 lines. Width 16 lines.

Inhabits the Northern Seas.

This species is distinguished from all others, by one or two keels upon the lowest whirl, and by the thick noduled folds which traverse the other whirls; these folds are seen strongly prominent, only upon this species and the *BUCCINUM undatum*. It differs from that, by its form, and particularly by its aperture, the lip of which is bordered by a very distinct varix.

6. **BUCCINUM ANGLICANUM**, MARTINI. *The English Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 963, fig. 17.

Pl. IV. fig. 9.

B. testâ oblongâ, conicâ, tenuiusculâ, transversim sulcatâ et striatâ, rufo-fuscescente; striis longitudinalibus obsoletis; sulcis transversis prominulis; anfractibus convexis, supernè depressis; spirâ obtusâ; columellâ subverrucosâ.

Shell oblong, conical, rather thin, of a reddish brown color, covered transversely with striæ and ridges, with some slightly apparent longitudinal striæ; the transverse ridges are raised and very prominent; spire elongated; seven whirls to the spire, convex and depressed at their upper part; the lowest whirl is longer than all the others together; aperture elongated, ovate, of a reddish yellow, slightly emarginated at its base; lip thin, forming at its upper and internal part a sort of small canal at its union with the left lip; columella almost straight, subverrucose, and of a reddish yellow.

Length 2 inches. Width 9 lines.

Inhabits the seas of England and Norway.

This species is easily distinguished by its turreted form, the ridges and transverse striæ, and by the slightly angular whirls of the spire.

7. **BUCCINUM LIGATUM**, NOBIS. *The Bound Buccinum.*

(Collect. MASS. LAM.)

Pl. V. fig. 15.

*B. testâ ovato-oblongâ, rugis convexiusculis succinctâ, griseo-rufescente, anfractibus convexis, margine superiore planis et adnato limbosis; aperturâ albâ, lævigatâ.*

Shell ovate-oblong, reddish, surrounded by strongly prominent ridges, which are seven in number upon the lowest whirl. Between the ridges are seen pretty fine and very regular striæ; longitudinal lines, slightly apparent and distant, of a deeper color, form upon the ridges species of rings. Epidermis of a deep brown color; spire composed of six distinct, convex whirls, the lowest very large, compressed and re-entering at its upper part; aperture ovate, elongated, whitish, pretty strongly emarginated at its base; lip slightly undulated, forming at its upper and internal part, a small canal. The columella is white and slightly arched.

Length 2 inches 3 lines. Width 14 lines.

Inhabits the coasts of the Cape of Good Hope.

We restore to the genus **BUCCINUM** this species, which Lamarck placed among the *Purpuræ*, under the name of *PURPURA ligatum*; it is very analogous to the *BUCCINUM Anglicanum*; but it nevertheless differs, in that the whirls of the spire are less turreted and less convex. The aperture is much larger and more effuse than in that; lastly, the brown lines do not exist upon the *BUCCINUM Anglicanum*, and the ridges



are more numerous and less distant in that which we have described.

8. **BUCCINUM PAPYRACEUM**, BRUG. *The Paper Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 963, fig. 16.

Pl. IV. fig. 10.

B. testâ ovato-oblongâ, tenui, transversim striatâ, albo-rufescente: anfractibus convexis supernè depressiusculis; spirâ peracutâ; labro tenuissimo, acuto, intùs striato.

Shell ovate, conical, thin, reddish, of a deeper color towards the base, covered with transverse approximate striæ, slightly raised, more strongly prominent at the lower part, and upon the upper whirls, some slightly apparent longitudinal striæ; spire pointed, composed of seven or eight convex whirls, slightly depressed at their upper part; aperture white, ovate, elongated, terminated at its upper part by a small canal, formed by a curve at the top of the right lip, and a transverse wrinkle of the left lip; right lip thin, sharp, finely denticulated, marked interiorly with transverse striæ which do not extend far into the cavity, nineteen, twenty, and even sometimes more in number; columella white, almost straight.

Length 2 inches. Width 1 inch.

Inhabits the Seas of Norway.

The specimen which served for the description of Bruguière is the same as that of Lamarck; this specimen appears to me to have been young; for those which I have examined, belonging unquestionably to the same species, are thicker, with less apparent exterior striæ; only the transverse and internal striæ of the right lip are always very distinct.

9. **BUCCINUM ANNULATUM**, LAM. *The Ringed Buccinum.*(Collect. MASS. LAM.) *Encycl.*, pl. 399, fig. 4, a, b.

Pl. IV. fig. 11.

B. testâ ovato-conicâ; transversim striatâ, albo-rufescente, anfractibus supernè angulatis. angulo annulatim cingulifero; aperturâ lævi; labro tenui, simplice, infernè repando.

Shell ovate, conical, transversely striated, of a reddish white color; spire pointed, composed of nine angular whirls, depressed at their upper part, where they are surrounded by a sort of wrinkled ring; the whirls of the spire, with the exception of the last, are by no means convex; aperture ovate, whitish, emarginated at its base; right lip thin, sharp, forming a small canal at its upper and internal part at its union with the left lip; columella white.

Length 9 lines. Width 6 lines.

**Inhabits**

This species is remarkable for its pointed spire, and its angular whirls, the upper ones having their margin slightly scaly.

10. **BUCCINUM COCHLIDIUM**, CHEMN. *The Stair-case Buccinum.*

(Collect. MASS.) MARTINI, pl. 55.

Pl. VI. fig. 17.

B. testâ ovato-conicâ; crassiusculâ, lævi, luteo-rubente, lineis longitudinalibus rufo-fuscis, anfractibus angulatis, complanatis, ultimo convexiusculo, spirâ longiore, supernis ad angulam subplicatis; aperturâ griseo-lutescente; labro simplici, basi repando.

Shell ovate, fusiform, very thick, smooth, whitish, ornamented throughout its whole length with lines, generally undulated, of a reddish fawn color; spire conical and pointed, formed of seven or eight strongly prominent whirls, flattened above, and presenting a species of canal, and an obtuse, con-

vex slope; the upper whirls are crowned upon the slope with a small row of tubercles; between each suture of the whirls of the spire, exists a deposit of white and smoother matter, which is seen at the upper part, and which terminates by a sort of callosity upon the side of the columella; aperture reddish, wide and ovate, terminated by a pretty large emargination; lip simple and arched.

Length 2 inches. Width 1 inch 6 lines.

Inhabits the islands of the South Sea, and especially the coasts of New Zealand.

This handsome species is particularly remarkable by the turreted whirls, and above all by an original deposit of whiter calcareous matter, which is seen at the upper part of the lower whirls of the shell.

The young specimens of this species appear to approximate in their form and diminutiveness, the *BUCCINUM carinatum* of Turton (*Conch. Diction.* page 13, tab. 26, fig. 94), which has been found in the bay of Dublin, upon the coasts of England, and upon those of Ireland.

11. **BUCCINUM MONILIFERUM**, VAL. *The Collared Buccinum.*

(Collect. MASS.)

Pl. III, fig. 8.

B. testâ ovato-oblongâ, lævi, albido-lutescente, duabus fasciis interruptis fuscis; anfractibus subconvexis, duobus infimis supernè angulatis, ad angulum tuberculis subspinosis coronatis; labro simplici, margine peracuto, basi subrepando.

Shell ovate, oblong, fusiform, smooth, whitish, slightly diaphanous, surrounded by two brown bands, interrupted by very prominent chestnut-colored spots upon the lowest whirl of the spire; a band of the same color, but less distinct, exists upon the other whirls; spire composed of seven or eight

slightly angular whirls, the two or three lowest, crowned with a row of elongated, solid, pointed tubercles, pretty near to each other; the tubercles of the upper whirls are less apparent. The aperture is yellowish, ovate; base pretty strongly emarginated; lip thin, arched, marked internally by two transverse brown bands, which are very apparent externally.

Length 1 inch 6 lines. Width 8 lines.

Inhabits the coasts of Newfoundland.<sup>3</sup>

This pretty species is very remarkable for the tubercles or spines which project from the whirls of the spire, and which are particularly prominent upon the lowest. It has great resemblance to the preceding in its form, but it is easily distinguished by its different size, the *BUCCINUM moniliferum* being much smaller.

12. **BUCCINUM GLOBULOSUM**, NOBIS. *The Globular Buccinum.*

(Collect. MASS.)

Pl. X. fig. 33.

B. testâ ovatâ, ventricosâ, lævi, violaceâ, basi largâ fasciâ albescente; aperturâ dilatâta, ovaliformi; columellâ flavescente; labro intûs rubescente.

Shell ovate, smooth, ventricose, spire formed of six slightly convex whirls; the lowest very large, slightly canaliculated; the coloring is of a deep violet and oftentimes of a yellowish ash color, with a small white band which borders the base of each whirl of the spire. There exists also at the base of the shell, a large band of a grayish white color; upon some specimens longitudinal whitish lines are seen, which are the vestiges of the several additions to the shell. Aperture large and ovular. The columella is strongly arched, and upon all its length is

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<sup>3</sup> Specimens of both the *cochlidium* and *moniliferum* are in my cabinet, found at Rio Janeiro, and I cannot but think the above locality is erroneous.—TR.

seen a callosity of a yellowish color. The lip is of a reddish brown internally.

Length 21 lines. Width 13 lines.

#### Inhabits

This shell is very different from other species in its form, which is globular, and its color, of a deep violet. In some specimens the spire is more elongated, and sometimes, within the shell, where it is of a paler violet, are delineated deeper bands; one only exists upon the upper whirls, and two broader upon the lowest.

This species strongly resembles in its form the *BUCCINUM ovum* of Turton, figured in the *Zoölogical Journal*, vol. II. pl. 13, fig. 19; but it is thicker and more colored than that, which, on the contrary, is thin and of an ivory white.

#### 13. *BUCCINUM TESTUDINEUM*, CHEMNITZ. *The Tortoise-Shell Buccinum.*

(Collect. MASS, LAM.) MART., pl. 7, 8, 49.

Pl. I. fig. 1; pl. VII. fig. 22.

*B. testâ ovato-conicâ, lævigatâ, cinereo-fuscescente, tæniis transversis albo et nigro tessellatim articulatis; aperturâ lævi; labro tenui, margine acuto.*

Shell ovate, conical, of a bluish ash color, traversed by distant lines, articulated and generally formed by oblong black points; the spots upon the upper whirls are larger, flamed, more or less numerous. Seven whirls to the spire; they are slightly convex, and united by a pretty fine and regular linear suture. The aperture is oblong ovate, slightly longitudinal, smooth and of a chamois-yellow color; the right lip is thin and sharp.

Length 2 inches. Width 1 inch.

Inhabits the seas of New Zealand.

We have figured several specimens of the shell at different ages and of different varieties, to show how much this species

varies in its form and coloring, in its different stages. The shell which served for the description of Lamarck, a figure of which we give in plate VII, fig. 22, was young; whence the color of the aperture presented him only a whitish tint upon the columella, and several large brown bands are seen upon the inner edge of the lip.

The specimens brought from New Zealand by Quoy and Gaimard are generally much larger, and more colored. One of these specimens has served us for the first figure of our first plate. Other specimens again, brought by these two learned naturalists, offer us a very distinct variety, which is found figured in Martini, pl. 7, under the name of *BUCCINUM striatum*; this variety is generally more globular. The spire is pointed, shorter, and sometimes re-entering; the upper whorls are oftentimes folded. The callosity at the top of the aperture is thick, and strongly prominent. The columella is arched, and slightly umbilicated.

We regard as a variety of this last shell, a species figured also in the work of Martini, pl. 49, under the name of *BUCCINUM maculatum*. This shell differs principally from the preceding specimen in its size, and in the whorls of the spire which are more rounded. The columella is almost straight, smooth, a little projecting at its base, which partially covers a pretty distinct umbilicus, encircled by a margin which exists at the base of the emargination. We give as this variety pl. I, fig. 2.

Quoy and Gaimard have given in their valuable work, *Voyage de l'Astrolabe*, pl. 30, fig. 12, the figure of a specimen of this same variety, but without regular transverse points.

14. *BUCCINUM LINEOLATUM*, QUOY et GAIMARD. *The Lineated Buccinum.*

(Collect. MASS. et MUS.) *Voyage de l'Astrolabe*, pl. 30, fig. 14-16.

Pl. I, fig. 3.

B. testă conică, fusiformi, lævi, luteo-virescente, nigro transversim lineată; apertură ovali, aurantiacă; margine dextro sulcato.

Shell smooth, spindle-shaped, spire elongated, pointed,

canal short, aperture pretty large, oval, right lip marked throughout its whole extent by deep violet colored lines, crossed by white lines. The columella is smooth, and of a bright yellow color, as well as the edge of the right lip. Externally, the ground color is of a greenish brown, banded with black. These transverse striæ are definite and at regular distances; six or eight appear on the lowest whirl. The operculum is very small, unguiculated, pointed, and of a reddish brown.

Length 15 lines. Width 7 lines.

Inhabits the Bays around New Zealand.

This Buccinum is common in the Bays dividing New Zealand; it is found at low tide among the stones on the shore. Lamarck had established a species under this name; but the specimen which he described was a young *BUCCINUM testudineum*, the oblong points of which also form transverse and interrupted lines, but less continued and less distant than those of the *BUCCINUM lineolatum*. We give a figure of it in pl. VIII, fig. 25.

The name of *lineolatum* was given to this species by Quoy and Gaimard, who brought it from New Zealand.

15. **BUCCINUM DELALANDII**, NOBIS. *Delalande's Buccinum.*

(Collect. MASS. et MUS.) CHEMN. pl. 152, fig. 1455.

Pl. V, fig. 14.

B. testâ ovato-oblongâ, subturriculatâ, cinereâ, transversim tenuissimè striatâ, fasciis longitudinalibus undulatis; spirâ acutâ; aperturâ ovato-oblongâ; labrò lævi, albo, dilatato, intus striato, rubescente; epidermi virescente.

Shell ovate, elongated, subturritated; external surface of a bluish ash color, marked with very fine, close striæ; it is also ornamented with longitudinal undulated bands or flames, formed by lines more or less approximated; epidermis greenish; spire slightly pointed, composed of six whirls, which are

slightly convex, and united by a pretty delicate regular suture. Aperture oblong ovate, effuse towards the base; right lip smooth and white, marked interiorly, at a short distance from the edge, with sixteen or eighteen transverse striæ of a reddish brown; columella slightly arched and whitish.

Length 16 lines. Width 9 lines.

Inhabits the rocks of the Cape of Good Hope.

This species resembles exceedingly the *BUCCINUM testudineum*; but it differs, nevertheless, in its form, which is a little more elongated, and in its more spreading aperture. Besides, the spots on the shell do not form transverse lines, but blotches, or longitudinal waved bands. The striæ upon the interior of the aperture also do not exist in the *BUCCINUM testudineum*.

I have given to this shell the name of Delalande, who first made it known; he obtained it in his voyage to Africa, a voyage so useful to science by the numerous collections which were made, and with which the Museum was enriched.

16. *BUCCINUM QUOYII*, NOBIS. *Quoy's Buccinum.*

(Collect. du Museum.)

Pl. V, fig. 13.

B. testâ ovato-oblongâ, fulvâ transversim plurimùm, longitudinaliter tenuissimè striatâ; spirâ acutâ; columellâ prominulâ; aperturâ ovaliformi, rubescente; labro arcuato, internè striato.

Shell oblong-ovate, of a red brown, furrowed throughout its whole extent by regular transverse striæ, numerous, pretty near, interwoven by other very fine longitudinal striæ; spire pointed, composed of seven whirls, each whirl, except the lowest, adorned with longitudinal tubercles or ribs; the columella projecting a little above an incipient umbilicus, which penetrates it at the base of the emargination. Aperture oval, provided with a callosity upon the left lip, which is of a beautiful reddish color; lip arched, plaited upon the internal edge as often as there are striæ externally.



Length 1 inch 8 lines. Width 11 lines.

Inhabits New Zealand.

This species, established from a specimen brought to the Museums by Quoy and Gaimard, resembles the *BUCCINUM testudineum*; but it differs materially from it in its uniform reddish brown color, and the very prominent transverse ridges.

17. *BUCCINUM PAYTENSE*, VAL. *The Payta Buccinum.*

(Collect. du Museum.)

Pl. VI, fig. 16.

B. testâ ovato-oblongâ, lævi, albidâ, lineis longitudinalibus rufescentibus maculatâ; spirâ elongatâ, acutâ; aperturâ albidâ, ovatâ; labro tenui; columellâ albâ.

Shell ovate, oblong, smooth, whitish, marked with longitudinal reddish lines. The epidermis which covers it, is pretty thick, and of a beautiful chestnut color. The spire is elongated, pointed, composed of seven slightly convex whirls; aperture whitish, ovate, slightly narrowed towards the upper part, and widened at the base, which is rather deeply emarginated; lip thin, slightly rounded, compressed towards its upper third; upon the columella is observed a white callosity, adhering to the body of the shell, and partially formed by the left lip.

Length 2 inches 3 lines. Width 1 inch.

Inhabits the rocks of Payta upon the coasts of Peru.

This species was presented to the Museum by Lesson and Garnot, who brought it among the numerous objects collected during their voyage around the world. It clearly very much resembles the *BUCCINUM testudineum*; but it is distinguished from it by the more elongated whirls of the spire, and by its coloring, which is different. That which we describe has reddish longitudinal lines, whilst in the *BUCCINUM testudineum*,

*Buccinum.*

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points, more or less elongated, form, on the contrary, transverse lines.

18. **BUCCINUM LÆVISSIMUM**, Gmel. *The Smooth Buccinum.*

(Collect. MASS. LAM.) LIST., t. 978, fig. 35.

Pl. VII, fig. 20.

B. testâ ovato-oblongâ, lævissimâ, nitidâ, luteo-fulvâ et cærulescente; anfractibus convexiusculis, conatis; spirâ breviusculâ, obtusiusculâ; aperturâ lævi; labro arcuato, infernè repando.

Shell ovate, oblong, ventricose, smooth, whitish; some slightly apparent, transverse-brown bands; epidermis reddish brown; convex longitudinal folds formed by the growth of the shell; spire short, obtuse, sutures slightly apparent; aperture smooth, oblong and wide, narrowed at the upper part, somewhat more dilated at its base, where it is terminated by an oblique, wide emargination. The lip is thin, rounded, colored internally of a fawn color. Externally, near the base, is observed a prominent fold, which is continued winding round as far as the inferior third of the columella; this is arcuated, and slightly oblique.

Length 2 inches 3 lines. Width 1 inch 3 lines.

Inhabits the Indian Ocean, and the Cape of Good Hope.

According to the able observations of Quoy and Gaimard, the animal of this species is blind; and what renders it particularly remarkable, is a very large foot, extending from all parts of the shell. The operculum is exceedingly small. This mollusk possesses the power of absorbing by its foot, by means of pores with which this part is provided, a large quantity of water, which it throws off again, when it is disturbed, in several directions. It lives in deep water, and when it is brought towards the shore, its foot still farther enables it to bury itself in the sand. It is very voracious: it is generally taken, by placing a piece of flesh, as bait, in a net.

19. **BUCCINUM CALLOSUM**, Wood. *The Callous Buccinum.*

(Collect. Mass.) CHEMN. vign. 40, fig. 2.

Pl. VI, fig. 18 and 19.

B. testâ elongatâ, cylindriciformi, lævi, nitidâ atro-cinereâ; spirâ elongatâ, acutâ, basi cujusque anfractus cinguliferâ, albidâ spadiceâque; aperturâ ovaliformi, dilatâtâ, fulvescente; columellâ callosâ, lævi, arcuatâ, fulvâ.

Shell elongated, cylindrical, the whole external surface smooth, shining, of a coffee and milk color; spire elongated, pointed, composed of six whirls not convex; each whirl is covered between the sutures with a layer of matter, which assumes at the base a chestnut-color; this layer is much thicker upon the lowest whirl, and is continued, enlarging itself, to the left lip, where it forms a large semicircular callosity, of a deep chestnut-color, bordered with white. Each of the whirls of the spire is likewise separated from the others by a fawn-colored line, which is delineated a little below each suture. The aperture is ovate, of a pale fawn-color, dilated towards the middle, strongly emarginated at its base. The columella is arcuated, callous, fawn-colored and smooth; the callosity of the columella is oblique, thick, furrowed, much shorter than the right lip; from its lower part, a stria stretches out, which is directed obliquely upon the back of the shell, to its termination at the anterior angle of the right lip, which is sharp.

Length 20 lines. Width 8 lines.

## Inhabits

The *BUCCINUM callosum* is easily distinguished from the other species; its cylindrical form, and the layer of calcareous matter which covers the whirls of the spire, characterize it with precision. In the collection of Prince Massena is found a variety of this species which is of a nankin yellow, assuming a deeper tint upon the sutures. The interior, in this specimen, is whitish; the edge of a bright yellow; the columella callosity is of a dull white. We give this variety, pl. VI, fig. 19.

20. **BUCCINUM POLITUM**, LAM. *The Polished Buccinum.*

(Collect. MASS. LAM.) CHEMN. pl. 155, fig. 1469.

Pl. VIII, fig. 27.

B. testâ ovato-conicâ, apice peracutâ, lævissimâ, nitidâ, albo aut luteo-cærulescente; anfractibus convexiusculis, supremis obsolete plicatis; aperturâ lævi; labro simplici, margine acuto.

Shell ovate, conical, very pointed at its summit, smooth, shining, of a bluish white or yellow color; spire elongated, formed of eight slightly convex whirls; the sutures edged with a yellow border, and a little beneath with another violet band: these two zones are much more perceptible upon the lower whirl; the upper whirls are often longitudinally plaited; epidermis thin and greenish; aperture smooth, yellowish. The columella is slightly elongated, twisted at its extremity, and provided outwardly, at its origin, with two keels; the first is continued as far as the edge of the right lip, and the second terminates at the emargination, which is very apparent. The right lip is very thin, sharp and fragile.

Length 15 lines. Width 6 lines.

Inhabits the Seas of Senegal, and the rocks of the island of Timor.

This shell is easily distinguished by the coloring of bluish white or yellow which is peculiar to it, and which is very constant. It is remarkable also for its very pointed extremity.

21. **BUCCINUM FUSCATUM**, BRUG. *The Dusky Buccinum.*

(Collect. MASS. LAM.) KNORR. Vergn., 5th part, pl. 22, fig. 4.

Pl. VIII, fig. 24.

B. testâ ovato-conicâ, lævigatâ, rufo-fuscâ; anfractibus convexis, supernè longitudinaliter plicatis; aperturâ lævi, fuscâ; labro tenui, simplici, margine acuto.

Shell ovate, conical, smooth, of a reddish brown; spire

composed of six whirls, whose length slightly exceeds that of the aperture. The whirls of the spire are convex, bent obliquely at the suture, and marked in that part, by slightly projecting and distant longitudinal folds; the lower whirl is partially destitute of them, and those which are perceptible there, are only slightly obvious upon the upper half of the side of the aperture. The aperture is ovate, smooth; the lips are whitish, of a clear fawn-color, but the depth of the cavity presents the same tint as the exterior. It is narrower towards the base, where it terminates by a shallow emargination, the edges of which are slightly curved towards the back. The right lip is simple, sharp upon the edge and effuse. It has, towards its upper part, an oblique fold, which seems to widen the aperture, and which partially forms the obtuse angle. The columella is almost straight, shining, and of a livid color.

Length 15 lines. Width 7 lines.

Inhabits the coasts of Peru, from whence it has been lately brought in great abundance.

This species is perfectly distinct from all others which compose the genus BUCCINUM, by the singularity of its aperture, which is widened towards its upper part in the form of a gutter.

22. **BUCCINUM LÆVIGATUM**, LINN. *The Variegated Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 964, fig. 49.

Pl. VIII, fig. 26.

B. testâ ovato-oblongâ, lævi, nitidâ, luteo-rufescente, lineolis fuscis longitudinalibus flexuosis sæpiùs ornatâ ultimo infractu; spirâ longiore, medio fasciâ albo nigroque articulatâ cincto; aperturâ subdilatâ, lævi, alba.

Shell ovate, oblong, smooth, shining, of a reddish or whitish yellow, ornamented with small longitudinal lines, waved, vermiculated or flexuous, of a chestnut color; epidermis greenish; spire composed of six whirls, the lower larger than all

the others together. At the base of each whirl of the spire, is found a transverse band of slightly apparent, articulated black points. A band, more strongly marked, the points of which are more distinctly observable, surrounds the lower whirl of the body of the shell; aperture ovate, sub-dilated, smooth, canal short, feebly emarginated; columella white, nearly straight; right lip smooth, rarely denticulated, white and slightly sharp.

Length 8 lines. Width 4 lines.

Inhabits the Mediterranean, the shores of Provence, Corsica, Sicily, and Barbary.

The coloring of this pretty little shell is very variable. It sometimes happens that the transverse articulated bands do not exist, or else the longitudinal waved bands are replaced by a very fine vermiculated net-work. It varies much less in its form; nevertheless, it sometimes becomes thicker; the whirls of the spire are then more detached, and more elongated.

23. **BUCCINUM GRANUM**, LAM. *The Grain Buccinum.*

(Collect. MASS. LAM.)

Pl. XVI, fig. 58.

B. testâ parvulâ, ovatâ, crassiusculâ, lævi, rufescente, lineolis rufis interruptis cinctâ; spirâ obtusiusculâ; aperturâ albâ.

Shell small, ovate, pretty thick, reddish, smooth, shining, surrounded with interrupted, small, brown lines, more approximate towards the middle of the lowest whirl, and of a deeper color at the base; spire elongated, pointed, composed of seven slightly convex whirls, surrounded at their upper part by a white band, sprinkled with distant, brown points or spots; aperture white; the internal edge of the right lip crenulated; the external part forming a smooth, thick callus, of a dull white, which is continued upon the base of the shell even to the columella, which is arcuated and folded at its base.

Length 6 lines. Width 3 lines.

Inhabits the Indian Ocean upon the coasts of the Isle of France.

This pretty species, which is almost always transparent, is found in most of the collections; but its native place is not known with certainty.

24. **BUCCINUM SERRATUM**, DUFRESNE. *The Serrated Buccinum.*

(Collect. MASS.)

Pl. IX, fig. 23.

B. testâ elongatâ, turriculatâ, violaceo-purpuratâ, lævi, nitidâ, longitudinaliter supernè plicatâ; spirâ acutissimâ, anfractibus convexis, ultimo multò majore, depressiusculo; aperturâ ovato-oblongâ, violaceâ; labro serrato, serraturâ rubescente.

Shell elongated, turreted, of a purple violet color, smooth, brilliant, presenting longitudinal folds only upon the upper whirls; spire very pointed, composed of nine or ten convex whirls, the lowest of which is much larger than the others. At the upper part of the whirls there is a more or less broad plane regularly crowned with tubercles or folds, which disappear with age; this plane is much more apparent upon the lowest whirl, and is bordered outwardly by a rounded angle. The aperture is ovate, oblong, violet within and feebly striated. The columella is almost straight, extended and projecting a little beyond the lip; some striæ arise from the base of the left lip, and are continued even to the base of the right lip; right lip denticulated without through its whole length, partially forming the angle towards the keel. The teeth are in number 19 or 20, and of a reddish color.

Length 2 inches 3 lines. Width 9 lines.

Inhabits the South Sea, upon the coasts of California.

This large and fine species was much sought for several years since ; it is less rare at present in cabinets ; it is found even  $2\frac{1}{2}$  inches in length. M. Edoux, a distinguished naturalist, collected in his voyages a large number, which he has lately brought home.

25. **BUCCINUM ACHATINUM**, LAM. *The Agate Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 977, fig. 13.

Pl. VII, fig. 21.

B. testâ ovato-elongatâ, turrîta, lævi, luteo-rufescente ; anfractibus convexiusculis, supernè confluentibus ; spirâ apice obtusiusculâ ; aperturâ lævi, basi latiusculâ.

Shell ovate, elongated, subturreted, smooth, polished, of a reddish yellow color, composed of seven whirls, hardly convex. The suture which separates them is simple, shallow, submargined ; the summit moderately pointed. Pretty prominent striæ of growth are seen upon the lowest whirl ; aperture ovate, smooth, widened at the middle and strongly emarginated at its base ; columella yellowish, smooth and arched ; a keel, continued from the upper third of the aperture to the base of the right lip ; the space between the keel and the edge of the lip is filled with oblique folds. The right lip is simple, thin, sharp, and slightly effuse towards the middle.

Length 2 inches. Width 6 lines.

Inhabits the Bay of the Cape of Good Hope.

This species, though common, is rarely found perfect in collections. The specimens which we procure are almost always partially worn, by the violence of the waves by which they have been cast upon the shore. It appears to be found only in very deep water. The animal resembles that of the *smooth Buccinum*, and like it is blind.



26. **BUCCINUM VITTATUM**, LINN., GMEL. *The Granulated Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 977, fig. 34.

Pl. IX, fig. 26 et 30 var.

B. testâ conico-acutâ, subturritâ, albido-corneâ vel cinereo-cærulescente; anfractibus convexis, striis impressis tenuibus distantibus cinctis supernè bicingulatis: cingulis plicato-granulosis; fauce fulvo-fuscescente.

Shell elongated, conical, slightly turreted, of a bluish or ashy white color; spire very pointed at its summit, composed of nine or ten slightly convex whirls, united by a shallow suture, and furnished at their upper part with very close small folds or granulations; these folds form a girdle, and crown the whirls, which are again ornamented throughout their whole length with transverse thin ridges, more strongly prominent towards the base; there appear, besides, upon the lowest whirl, oblique striæ of growth pretty apparent, and presenting sometimes the appearance of varices; one or two striæ separate also the folds from the upper marginal edge. The aperture is oblong, slightly narrowed, dilated at its base, where it is terminated by a very deep and slightly oblique emargination. The interior of the aperture is of a brown fawn color; right lip white, thin and sharp; columella white and rounded.

Length 2 inches 2 lines. Width 8 lines.

Inhabits the Indian Ocean.

Lamarck has withdrawn this species from the genus **BUCCINUM** of Linnæus, in order to unite it to the genus **TEREBRA** of Bruguière. This learned naturalist, in determining this shell, regarded merely the length of the spire; but it has in many respects so much alliance to the **BUCCINA**, that many recent authors think it should be restored to the genus, where Linnæus originally placed it. The coloring of this shell is quite variable. Some specimens are of a livid yellow, others of a bluish violet. Lamarck has also established, as a species, under the

name of *TEREBRA granulosa*, a variety of the *BUCCINUM vittatum*, to which Chemnitz, who perceived its relation to this last species, had assigned its proper place in his great work, pl. 188, fig. 1816, under the title of Variety of *BUCCINUM vittatum*.

Deshayes, in Bellanger's Voyage to the East Indies, has given, pl. 2, fig. 3 and 4, as a new species, under the name of *BUCCINUM melanoïdes*, a shell altogether similar to the variety of Chemnitz; the only difference which I have been able to discover is found in the spire, which is a little more inflected.

27. **BUCCINUM SENTICOSUM**, LINN. *The File Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 967, fig. 22.

PL. IX, fig. 31.

*B. testâ ovato-oblongâ, subturritâ, scabrâ, longitudinaliter plicatâ, striis transversis elevatis cancellatâ, rufescente aut rubescente, infernè zonâ ruforubente cinctâ; plicis per totam longitudinem denticulato-asperis; columellâ plicatâ aut plicatâ.*

Shell ovate, oblong, rough, slightly turreted, its entire surface apparently armed with small spires; spire pointed, composed of nine or ten rather convex whirls, furnished with longitudinal folds or ribs, somewhat distant, and formed by the elevations of transverse striæ, which are also cut transversely by other striæ elevated and resembling sharp scales; these are a little more prominent upon the convexity of the longitudinal ribs than in their interstices, and it is their prolongation in this part, which causes them to resemble small spines. Its color is reddish, varied with fawn-colored or clear chestnut-brown spots; oftentimes the lower whirl presents, towards its middle, a transverse brown band, the half only of which can be seen upon the upper whirls, the whole length of the sutures. The aperture is whitish, ovate, elongated, narrowed towards its base; the right lip has a slight obliquity, relatively to the axis of the shell; it is slightly crenulated upon the lip, and furnished interiorly with fifteen or sixteen transverse striæ which are continued even to the depth of the

cavity; the emargination is very oblique, accompanied externally by a thick, rounded, and twisted varix, which, revolving around the axis, terminates below the folds of the columella; this is slightly arcuated; one or two oblique folds are delineated at its base.

Length 1 inch 9 lines. Width 9 lines.

Inhabits the Indian Ocean, the coasts of the Island of Amboyna, the Moluccas, and New Holland.

Lamarck had also separated this shell from the *BUCCINUM* of Linnæus, to place it in his genus *CANCELLARIA*, under the name of *CANCELLARIA senticosa*. The folds which exist at the base of the columella, and the asperities which cover the entire surface of the shell, induced him to place it in this manner; but the folds are always more numerous and more prominent in the genus where he arranged this species. Lately M. Quoy has made known, in his beautiful work, the organization of the animal, and he has accurately marked out the place which the shell should occupy, by placing it anew in the genus *BUCCINUM*, to which it belongs.

This shell is very remarkable for its form, and particularly for the asperities which we have described. Lamarck points out a variety of this species under the letter *B*; but the differences which he remarked, were produced only by the greater freshness of the specimen which he had observed.

28. **BUCCINUM TIGRINUM**, NOBIS. *The Tiger Buccinum.*

(Collect. MASS.)

Pl. X, fig. 32.

B. testâ ovatâ, elongatâ, subturriculâ, fulvescente; spirâ conicâ, acutâ, plicis rotundatis transversis cinctâ, longitudinaliter maculis spadiceis et fusco-albidis, anfractibus convexiusculis; aperturâ albâ, ovatâ, elongatâ; columellâ crassâ, albâ; labro dextro tenui.

Shell ovate, elongated, subturreted, generally of a clear fawn color, marked with numerous spots of a deep chestnut

or reddish color, oblong or quadrangular, alternating with other similar spots of a dull white: the first, oftentimes, form longitudinal bands; spire conical, pointed, formed of six slightly convex whirls, the lowest of which is as large as all the others; they are flattened and angular at the upper part, crowned upon the angle by a subgranulated margin; the suture is accompanied at the upper part of each whirl, by a small, slightly convex and undulating margin; upon the lower whirl are seen nine rounded, transverse, very angular folds: the other whirls are also ornamented with three folds. The spaces between them bear fine transverse striæ. The aperture is white, ovate; elongated; columella thick, rounded, white and almost straight. The right edge is thin, and slightly sharp.

Length 1 inch 7 lines. Width 8 lines.

#### Inhabits

This species, whose locality we do not know, is rare in collections. It is easily recognised by its form, and its coloring, which gives it a spotted appearance.

29. **BUCCINUM DISCOLOR**, QUOY et GAIM. *The Discolored Buccinum.*

(Collect. MASS. et MUS. LAM.) CHEMN., pl. 150, fig. 1405-6.

Pl. XI, fig. 39.

B. testâ parvâ, oliviformi, violaceo-griseâ, transversim tenuissimè striatâ; spirâ acutâ, supernè plicis longitudinalibus distinctâ; anfractibus convexiusculis; aperturâ cinereâ, ovatâ; columellâ lævi; labro dextro denticulato, intus plicato.

Shell small, olive-shaped; color varied with violet and gray; longitudinal brown lines, distant; a white, decurrent band surrounds the middle of the lower whirl; spire pointed, formed of six slightly convex whirls, covered with transverse striæ; slightly apparent longitudinal folds upon the two or three lowest whirls. The aperture is of an ashy gray, ovate,

moderate size, narrowed at the base, forming at its upper part a canal, with a sinus bounded by two teeth behind; columella smooth, almost straight, with two fold-like guttules at its termination; right lip denticulated, and folded internally.

Length 8 lines. Width 4 lines.

Inhabits New Holland, and the Island of Tonga-Tabou.

De Blainville, in the 1st volume of the *Nouvelles Annales du Muséum*, page 254, pl. 12, fig. 9, has united this pretty little shell to the genus PURPURA, under the name of PURPURA *glivina*. Quoy and Gaimard, who brought it from the island of Tonga-Tabou, figured it about the same time in their *Voyage autour du Monde*, pl. 30, fig. 23, 25, under the name of BUCCINUM *discolor*; we have retained the place and the name given it by these voyagers.

30. **BUCCINUM BLAINVILLII**, DESH. *Blainville's Buccinum*.

(Collect. MASS.) CHEMN., pl. 125, fig. 1201-2.

Pl. XI, fig. 38.

B. testâ ovatâ, elongatâ, albescente; spirâ acutâ, cancellatâ, costulis longitudinalibus et striis transversis decussatâ; anfractibus angustis, in medio carinatis; aperturâ ovatâ, violascente; columellâ rufescente; labro dextro intus tenuè striato.

Shell ovate, elongated, of a yellowish white; spire pretty elevated, pointed, latticed; composed of six or seven rounded whirls, slightly compressed, furnished with numerous, longitudinal folds or small ribs, crossed by acute and very fine revolving striæ; one of these striæ is more raised, and forms a keel upon the middle of each whirl; composed of a row of tubercles. The lowest whirl is more developed, and larger than all the others united; the keel of this is situated nearer the upper part. The aperture is ovate, elongated, slightly narrowed, of a violet-brown within. The columella is reddish, and marked with two brown spots; at its base there is a

small, very oblique fold; the lip is straight, reddish, furnished internally with numerous transverse striæ.

Length 11 lines. Width 5 lines.

Inhabits the coasts of Malabar, and the island of Vanikoro. It was brought from the latter place by Quoy and Gaimard.

Lately, and almost at the same time, this shell has been described by three authors, under three different names: the first, Wood, in his catalogue, has called it *BUCCINUM textum*, pl. 28, fig. 113. Deshayes, describing it in the *Voyage aux Indes Orientales* of Bellanger, gave it the name of *BUCCINUM Blainvillii*; and, lastly, Quoy and Gaimard, at the same time, figured it in their second *Voyage autour du monde*, pl. 32, fig. 30-31, under the name of *BUCCINUM cancellatum*.

31. *BUCCINUM COSTATUM*, QUOY et GAIM. *The Ribbed Buccinum.*

(Collect. du Museum.) *Voyage de l'Astrolabe*, pl. 30, fig. 17-18.

Pl. XI, fig. 36 et 37.

B. testâ ovato-conicâ, albo-griseâ, longitudinaliter costulatâ, transversim tenuissimè striatâ; spirâ acutâ; anfractibus convexus, depressis, et supernè angulatis, in medio carinatis; aperturâ ovaliformi, castaneâ; labro dextro latiusculo, tenui, intùs striato.

Shell ovate, elongated, of an ashy gray, often covered with reddish points. The spire is pointed, attenuated at its two extremities, composed of seven convex whirls, flattened, and angular at their upper part, ornamented in nearly all their length with longitudinal folds or ribs, tuberculated at their summit, and crowning the whirls. These ribs rarely extend to the base of the lowest whirl. There may be observed, besides, upon the exterior surface, numerous transverse striæ, very fine and very close, which, at the base of the lowest whirl, are changed to wrinkles more or less numerous. The aperture is ovate, its interior of an ashy violet, the oblique

emargination pretty strongly marked. The right lip is a little dilated and sharp; within striated, and of a reddish brown, as well as the columella, which is straight and somewhat twisted at its base.

Length 14 lines. Width 6 lines.

Inhabits the port of King George, in New Holland.

The form, and particularly the color of this shell, are quite variable. Quoy and Gaimard, who established this species, mention several varieties, one of which, smaller, is found at the Bay of the Isles, at New Zealand (*Voyage de l'Astrolabe*, pl. 30, fig. 14-16); they have given another in the same work, pl. 30, fig. 19-20; they have, besides, noticed two other varieties of this shell, one of which, also smaller, has a reddish ground, with spiral brown bands upon the sutures; the other has distant and well marked transverse striæ. We give, of this species, pl. XI, fig. 37, a variety which has a narrower elongated aperture, and which is covered with more or less oblong spots, with a band of a bluish color covering the middle of the lowest whirl.

32. **BUCCINUM ALVEOLATUM**, NOBIS. *The Chequered Buccinum.*

(Collect. MASS. et MUS.)

Pl. X, fig. 34.

B. testâ ovato-oblongâ, rufo-virescente aut albescente, transversim plicatâ, nigris albisque maculis distinctâ; spirâ elongatâ; anfractibus convexis, supernè longitudinaliter plicatis; aperturâ ovatâ, fauce cinereâ; labro dextro tenui, intùs transversim striato.

Shell ovate, elongated, of a greenish or whitish red, marked with approximate slightly apparent transverse folds, colored with numerous articulated black and white spots, always having a square or elongated form; spire rather elongated, composed of six convex whirls, sutures simple; the first five provided with sub-tuberculated longitudinal folds, the lowest as

long as all the others together, slightly flattened at its upper part, and destitute of longitudinal ribs. In some specimens these ribs which cover the whirls disappear entirely. Aperture ovate, ash colored at its depth; right lip thin, sharp, marked with transverse brown lines and striæ internally; columella nearly straight, slightly twisted at its base, accompanied at its lower third, by a thick, rounded and twisted callosity, which terminates at the base of the notch.

Length 14 lines. Width 7 lines.

Inhabits port Western in New Holland.

Quoy and Gaimard considered this species as a variety of the *BUCCINUM testudineum*, but without positively affirming it. Indeed it is perfectly distinguished from that by many differences: the *B. alveolatum* is smaller, the folds which cover it are projecting, their peculiar distribution give them a square or elongated form, which we have compared to a chequer-board. In young specimens these spots are often arranged in diamonds. These spots are more deeply colored than in the *B. testudineum*, the whirls are more convex, and the folds which cover them are very apparent. The lowest whirl of the shell is also compressed above. The aperture of this which we have described, instead of being smooth and of a chamois-yellow color like the *B. testudineum*, is invariably violet, with the lip feebly furrowed within. Finally, these two species do not inhabit the same localities.

33. **BUCCINUM VIOLACEUM**, QUOY et GAIM. *The Violet Buccinum.*

(Collect. du Museum.) *Voyage de l'Astrolabe*, pl. 30, fig. 32-34.

Pl. VIII, fig. 23.

*B. testâ ovatâ, globulosâ, fuscâ, violaceâ, transversim sulcatâ; spirâ brevi, obtusâ, lævi; anfractibus convexis, ultimo spirâ majore; aperturâ dilatâ, ovaliformi, fuscâ; labro dextro intus striato.*

Shell ovate, globular, ventricose, of a violaceous red brown,



ornamented with numerous transverse, rather broad folds, of a deeper color; the furrows shallow; spire obtuse and rounded. The whirls are convex, and four in number, the lowest much larger than all the others united. The aperture is wide, oval, of a bright brown; right lip thin, striated internally; columella rounded.

Length 16 lines. Width 9 lines.

Inhabits Table Bay at the Cape of Good Hope, where M. Quoy supposes it to be common, by the fragments he there met with.

To Quoy and Gaimard we are indebted for this new species, which may be easily confounded with the *PURPURA cruentata* of Lamarck, as has been well remarked by these learned naturalists; but it is more round, and more ventricose than the last; the transverse striæ are larger and less numerous; the aperture is less dilated, and the canal a little less elongated.

34. **BUCCINUM ACICULATUM**, LAM. *The Needle-shaped Buccinum.*

(Collect. MASS. LAM.) BLAINV. *Faune Franç.*, pl. 6; c., fig. 1.

Pl. XVI, fig. 55.

B. testâ elongato-subulatâ, basi transversim striatâ, colore variâ, diversimodè fasciatâ aut zonatâ; anfractibus longitudinaliter plicatis, noduloso-crenulatis, ultimo spirâ breviorè.

Shell elongated, narrow, turreted, formed of nine or ten very distinct whirls, slightly convex, ornamented with a great number of ribs formed like folds, subnodulous, approximate, numerous, and slightly raised upon the lowest whirl; these ribs are apparent only at the upper part, whilst the base is provided with transverse striæ, easily distinguished; aperture ovate, strongly notched; right lip thin, sharp, rounded at the lower extremity; columella a little bent. The general color

*Buccinum.*

c

is of a yellowish white, ornamented with ferruginous, minute lines, and with a surrounding band of a bluish brown, below each suture. The lowest whirl presents, towards its base, another larger and deeper colored band, which is obvious within the aperture.

Length 7 to 8 lines. Width 2 to 3 lines.

Inhabits the Mediterranean, the coasts of Provence, and of Sicily.

This pretty little species is quite common in collections, and is very remarkable for its elongated form, which naturally places it near the *B. vittatum*.

35. **BUCCINUM BELLANGERI**, NOBIS. *Bellanger's Buccinum*.

(Collect. MASS.) MART. et CHEMN., pl. 155, fig. 1463.

Pl. XIV, fig. 48.

*B. testâ elongatâ, subturritâ, cærulescente, apice acutâ; anfractibus convexis, suturâ marginatâ separatis, ultimo basi striatâ; aperturâ ovatâ; columellâ arcuatâ, basi uniplicatâ. Desh.*

Shell elongated, narrow, subturreted, of a bright, transparent ash color, covered with longitudinal waved and reddish lines; spire elongated, composed of seven or eight slightly convex whirls, marked at their upper part by a marginated suture, and two slightly apparent striæ towards the base; the lowest whirl shorter than the spire, marked at its base with regular, transverse striæ or ridges; aperture oval, oblong, smooth, white; right lip thin and sharp, slightly plaited internally. The columella, slightly arcuated, is terminated by a pretty prominent oblique fold.

Length 15 lines. Width 6 lines.

Inhabits the Bay of Bengal, the coasts of Ceylon.

This beautiful species has lately been brought home by Bellanger, a distinguished naturalist, to whom science is indebted

for numerous observations upon natural history, collected in a voyage to the East Indies. Deshayes, who had charge of the portion relating to the Mollusca, in the narrative of that voyage, has figured the shell which we have described, under the name of *politum*, on account of its analogy with the fossil shell of the same name, found by Basterot in the environs of Piedmont. But as this same name, *politum*, had been already given by Lamarck to a shell of this genus, we have thought proper to substitute for it the name of him who first made known this new species.

36. **BUCCINUM VIVERRATUM**, NOBIS. *The Civet Buccinum.*

(Collect. MASS.)

Pl. X. fig. 35.

B. testâ ovato-elongatâ, fusiformi, oleagineâ; spirâ acutâ; anfractibus convexusculis; supernè longitudinaliter plicatis, infernè transversim striatis, longitudinalibus maculis spadiceis et fusco-albidis; aperturâ ovatâ, elongatâ, intùs cærulescente; columellâ albidâ, tenui; labro dextro tenui, intùs striato.

Shell ovate, elongated, spindle-shaped, of an olive color; spire pointed, formed of six or seven slightly convex whirls, the lowest larger than all the others together, slightly angular, and flatish above. The edge of the angle in young specimens, is more prominent, and bordered by a row of pretty apparent tubercles, which disappear with age. Sutures slightly perceptible. The first three upper whirls are covered with very approximate small longitudinal folds; the others are ornamented externally merely, with numerous, regular transverse striæ, between which are distinguished other very delicate ones. These striæ are interrupted by elongated white or reddish spots, often presenting grayish flammules upon the upper whirls. Aperture ovate, elongated, attenuated at its two extremities. Interior bluish. Columella whitish, smooth, almost straight, and a little twisted at its base. Lip straight, thin, sharp, lightly striated at its inner edge with brown lines.

Length 14 lines. Width 7 lines.

Inhabits the Mediterranean, the coast of Alexandria.

The form of this species might lead one to confound it with the *FUSI*, and still more with the *PURPURÆ*; but it is distinguished from the former, by its much shorter canal, and less elongated spire; it is removed also from the *PURPURÆ* by its less dilated aperture, and the columella being less flattened towards the base.

37. **BUCCINUM TRANQUEBARICUM**, GMEL. *The Tranquebar Buccinum.*

(Collect. MASS. LAM.) MART., Conch., 4, t. 123, fig. 1146-1147.

Pl. XXIII, fig. 92.

B. testâ ovatâ, ventricosâ, longitudinaliter costatâ, transversim striatâ, albescente aut rufescente; anfractibus supernè angulatis; spirâ contabulatâ.

Shell ovate, ventricose, of an uniform whitish or reddish color, furnished with ten or twelve longitudinal folds upon each whirl, and crossed by numerous transverse striæ, covered with a thin, brown epidermis; spire but little raised, subturreted, pointed at its upper extremity, formed of five or six tapering whirls, flattened, keeled, crowned at their upper part, and constricted at their suture. The aperture is ovate, emargination slightly oblique. Right lip rather thin, of an orange color, denticulated, and strongly striated within. Columella subumbilicated, smooth, brown or reddish colored; the left lip having a callosity at the base, and partially covering the commencement of an umbilicus..

Length 20 lines. Width 1 inch.

Inhabits the Indian Ocean, the coast of Coromandel, the South Sea, the coasts of Chili.

This shell, so remarkable for its form, has been divided by Sowerby into two species; he has retained for the first the name

*BUCCINUM Tranquebaricum*, and has called the second, *PURPURA melanostoma*; he has given a figure of these two species in his *Genera*, No. 25, pl. 5, fig. 5 et 6.

The difference between young specimens and adults, has led into this error: the latter, much larger, have their transverse striæ more prominent; and the longitudinal folds of the lowest whirl, which are distinguished in a very striking manner upon the young specimens, disappear insensibly with age.

38. **BUCCINUM COROMANDELIANUM**, LAM. *The Coromandel Buccinum.*

(Collect. MASS. LAM.) LIST. pl. 939, fig. 34, a.

Pl. XXII, fig. 85.

B. testâ ovatâ, longitudinaliter plicatâ, transversè sulcatâ et striatâ, rufescente; plicis nodiferis; ultimo anfractu supèrnè angulato; spirâ exsertiusculâ; aperturâ albâ; labro crassiusculo, intùs striato.

Shell ovate, thick, solid, bi-conical, whitish, covered with a reddish epidermis, having nine or ten longitudinal folds, more strongly marked upon the last whirl, rarely prolonged as far as the base, and regularly divided into tubercles by more prominent transverse striæ, the interstices of which are furnished with other much finer and very approximate striæ; spire obtuse at its summit, composed of five or six slightly distinct whirls; the lowest very broad, flattened at its upper part, and sub-angular; aperture white, ovate, narrowed at its base, canaliculated at its upper part, at its union with the lip which is thin and denticulated at the edge, striated within. Externally, in adult shells, a pretty prominent varix is observed. Columella slightly bent, furnished throughout its whole length with small nodules.

Length 1 inch. Width 6 lines.

Inhabits the Indian Ocean, the coasts of Coromandel, near Tranquebar, the Atlantic Ocean, the coasts of the Island of Cuba.

The form of this shell, and the folds which are delineated upon its surface render it very remarkable. The very apparent margin of the right lip gives it a resemblance to the *BUCCINUM undosum* of Quoy and Gaimard, but it differs materially in several points. It is invariably smaller, the upper part of the last whirl is flattened, and the aperture canalculated at the upper part is above all a very obvious distinctive mark.

39. **BUCCINUM LYRATUM**, LAM. *The Lyre Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 968, fig. 22, c.

Pl. XXII, fig. 88.

B. testâ ovato-oblongâ, crassiusculâ, supernè internèque transversim striatâ, albo-cærulescente; plicis distantibus prominulis, basi obliquis, versûs labrum tenuioribus magisque confertis; spirâ brevi; labro intûs striato.

Shell ovate, oblong, thick, of a bluish white, with distant red spots; spire short and pointed, upon which may be counted five or six indistinct whirls; suture simple. These whirls are ornamented with longitudinal folds or ribs, narrow, and regular, finer and closer towards the lip. Upon the lowest whirl, which is somewhat ventricose, the ribs are slightly arcuated throughout their whole length; they descend quite to the base, and towards that point they are intersected by transverse striæ. Similar striæ exist at the upper part of the lowest whirl, which is flattened. Aperture elongated, and dilated in the middle, the interior is violet colored; lip thick, striated internally.

Length 9 lines. Width  $4\frac{1}{2}$  lines.

Inhabits the Seas of Senegal.

The appearance of this shell is pleasing and peculiar; it is somewhat related to some Volutes. It is found fossil at Dax. It has been described and figured under the name of *NASSA Desnoyersi*, by M. Basterot, in his *Mémoire sur la Géologie des environs de Bordeaux*, page 50, pl. 2, fig. 13.

40. **BUCCINUM UNDOSUM**, QUOY et GAIM. *The Undulating Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 938, fig. 33.

Pl. XII, fig. 41, a. b. c.

B. testâ ovato-biconicâ, crassiusculâ, solidâ, albo-rufescente; epidermi fuscâ, villosâ; anfractibus distinctis, transversim subnodulosè plicatis, fusco vel atro-rubescens, ultimo cæteris multò majore, longitudinaliter costulato; aperturâ ovato-elongatâ, albidâ, luteo margine; labro crasso, dentato, intus striato; columellâ callosâ.

Shell ovate, bi-conic, quite thick, solid, of a reddish white, and covered with a brown, velvety epidermis; the whirls moderate, pretty distinct, six in number, and provided with decurrent, subnodulous striæ, of a brownish or blackish red. The intervals white, and furnished with very fine striæ scarcely apparent; the lowest whirl much larger than all the others together, and having five or six thick, obtuse longitudinal folds or ribs, which are rarely continued as far as the base of the shell, and oftentimes form only tubercles, particularly in old shells. Aperture ovate, elongated, whitish, bordered with yellow; canal slightly prolonged, emargination slight and oblique. The lip, which is thickened by age, is denticulated throughout its whole length, and furrowed internally. Columella wrinkled, covered at its base with a thin, raised callosity.

Length 1 inch 9 lines. Width 1 inch.

Inhabits the Straits of Malacca, and the coasts of the Isle of France.

A single character observed in this shell, that of the margin on the right lip, led Lamarck to withdraw it from the genus *BUCCINUM* of Linnæus, to make his *Buccinum*-formed *Triton*; but this margin is too imperfectly formed in all the specimens of this species to justify any such separation. This shell presents a great number of varieties; the longitudinal ribs are sometimes slightly marked, or do not exist; at other times, on the contrary,

they are raised and noduled. From these distinctions, some authors have sought to divide it into several species; but when we have before us a large number of specimens of different ages, it is impossible not to recognise the identity which exists among them.

A series of forms, and the differences of the two extremes of age may have led to the error which we are noticing, and to classing the varieties of a single species as several species; but an examination and study of the intermediate ages, by bringing to view their different relations, lead at once to the necessity of uniting them; so important is it to examine shells in all the modifications which age and locality can produce in their very forms, before settling their classification. Simple varieties of the shell we are describing, have caused it to be divided into four species; we will now endeavor to point out the differences which separate them, or the resemblances which unite them, by comparing them successively to our type which we give in plate 12, fig. 41. By this examination we shall be convinced that the folds which have been considered as distinctive characters diminish or increase, by insensible degrees, in each of the varieties.

The first, which we admit in our work as variety *B*, pl. 12, fig. 41, b. is described by Gmelin under the name of *BUCCINUM affine*; it is the same as that called by Quoy and Gaimard *BUCCINUM cinctum*, *Voyage de l'Astrolabe*, pl. 30, fig. 5-6-7. It is ovate, smaller than our type, of the same color as the *B. undosum*. It is merely ornamented with transverse and rounded threads, and it is only upon some specimens that we begin to perceive slight longitudinal folds upon the whirls. The lip is thin, the crenulations within hardly apparent; but when the lip curves to form the margin, they become much more visible, and the denticulations of the edge begin also to be recognised.

This shell inhabits the Straits of Malacca (Martini), the South Sea (Solander), the coasts of Madagascar (Humphreys), the Isle of Vanikoro, of Tonga-Tabou, and many other localities in the Pacific Ocean.

The variety *C*, pl. 12, fig. 41, differs from the former by its more globular form, and by the disposition of its threads, which



are often divided and orbiculated in their outline. The color of all these shells is generally the same as that of our type. This variety is found upon the coasts of Brazil, and in the Bay of Rio Janeiro.

The variety *A*, pl. 12, fig. 41, is the *BUCCINUM strigosum* of Gmelin, and the *BUCCINUM fumosum* of Solander; it has been figured by Chemnitz, pl. 123, fig. 1145-1146. Smaller, wrinkled, and folded throughout its whole length, this exhibits the threads across it forming nodosities; the interstices of the longitudinal folds more deeply furrowed, are of a more reddish color. The differences in this last, are more remarkable than in the others: they may be attributed to difference of sex; a point which we have carefully examined in the *BUCCINUM undatum*, whose oblique ribs and transverse striæ are also, under the same circumstances, much more developed.

I think that the *BUCCINUM Indicum* of Gmelin, p. 3495, and figured in Chemnitz, pl. 103, fig. 1138-1139, which appears to me to be a shell in a bad state of preservation, should be considered as a *BUCCINUM undosum*.

41. **BUCCINUM D'ORBIGNYI**, PAYR. *D'Orbigny's Buccinum.*

(Collect. MASS.) PAYR. *Cat. de la Corse*, pl. 8, fig. 4, 5, 6.

Pl. XIII, fig. 42.

B. testâ ovato-acutâ, subfusiformi, fulvo et fusco variâ, longitudinaliter costatâ, transversim plicatâ et striatâ, subnodulosâ; anfractibus internè lineâ albâ cinctis; aperturâ ovatâ, violaceâ; labro intus striato.

Shell ovate, subfusiform, pointed at its summit, composed of eight very distinct whirls, a little swollen, ridged lengthwise by several subnodulous folds, covered also by transverse striæ and ridges; aperture ovate, violet, edged with reddish, and narrowed at its base; right lip deeply furrowed within; columella nearly straight, subgranular; rarely having a distinct fold at the base. The general color is brown, varied with fawn color, with a white zone at the base of each whirl, a broader decurrent band towards the middle of the lower whirl.

Length 11 lines. Width 6 lines.

Inhabits the Mediterranean, the coasts of Provence, Corsica, and the Isles of Hières.

This is a *BUCCINUM*, as has been fully settled by Payraudeau in his catalogue of the *Annelides* of Corsica; Blainville improperly placed it among the *CANCELLARIE*; the principal character of this genus does not exist in the shell which we are describing; it is rare to perceive even a fold upon the columella of this last, except in very young specimens. Male specimens are always much smaller, and never exceed 5 or 6 lines in length. The internal folds of the lip are also very strongly prominent.

This shell so much resembles our variety *A*, of the *BUCCINUM undosum*, that it might almost be asserted to belong to that species, and be considered as merely a local variety; nevertheless, it is smaller than that shell, less turgid, with less prominent ridges, the longitudinal ribs more approximate. Its coloring is the same, only the white band of the lowest whirl is better formed and more distinct.

42. *BUCCINUM DISTORTUM*, WOOD. *The Distorted Buccinum.*

(Collect. MASS.) CHEMN., pl. 94, fig. 913.

Pl. XVIII, fig. 64 et 65.

B. testâ ovatâ, turgidâ, crassâ, solidâ, albescente, fasciis fuscis aut fulvis distinctâ; epidermi fulvâ; spirâ brevi, obtusiusculâ, apice acutâ; anfractibus supernè connatis, longitudinaliter subnodulosè plicatis, transversè striatis; ultimò lævi, basi sulcato; aperturâ ovatâ, oblongâ, angustâ, intùs albidâ; labro dextro intùs striato.

Shell ovate, inflated, solid, covered with a fawn colored or reddish epidermis; spire short, slightly obtuse, pointed at its summit. The whirls are six or seven in number, and very approximate; the four or five upper ones are conical, covered with sub-nodulous, longitudinal folds, which gradually become effaced, and disappear altogether upon the lower whirl. This is partly smooth, pretty strongly furrowed at its base, larger

than all the others, and separated by a broad and deep suture, forming a kind of scaffold, which renders it very round above. The other whirls are not very apparent; at their surface is seen, besides the longitudinal folds of which we have spoken, transverse striæ which terminate in the lowest whirl. The aperture is ovate, oblong, narrow, sinuous, white within, and narrowed above by a double deposition of calcareous matter; the right lip, striated internally, is thick above, and denticulated upon the remainder of its length. The columella, sinuous in its middle, is covered by the left lip, which is pretty thick, and partially conceals at its base a grooved columellar callosity. The coloring of this shell is whitish, marked with brown or fawn colored spots or bands.

Length 20 lines. Width 10 lines.

Inhabits New Holland.

This shell, the characters of which we have given from an old specimen, exhibits somewhat the aspect of a *COLUMBELLA*, which is owing to the shortening of the spire, and to the narrowing of the aperture. Some young specimens so little resemble the adult, that we might be led to form a new species of it; and it is only by attentive observation, that we recognise their affinity. The young (female?) specimens, are generally more ventricose, and more elongated; they have altogether the form of the *BUCCINUM* of our first section. The aperture is much wider, the thickening above, and the scaffold of the lowest whirl do not exist; but the pretty prominent transverse striæ are seen upon that whirl. We have given a figure, pl. 18, fig. 65, which approaches to our type. Another (male?) variety, is much smaller, and colored upon the lowest whirl with transverse bands of a deep brown.

43. **BUCCINUM FLEXUOSUM**, LAM. *The Flexuous Buccinum.*

(Collect. MASS. LAM.)

Pl. XXVI, fig. 106.

B. testâ oblongâ, subfusiformi, basi transversè striatâ, albidâ, lineis fuscis longitudinalibus flexuosis ornatâ; aperturâ angustiusculâ; labro obsolete striato.

Shell oblong, subfusiform, spire turreted, conical and pointed, composed of seven or eight folded whirls, oftentimes tuberculated. The upper edge of each whirl is very slightly compressed, which renders the sutures but little apparent. The lowest whirl, with neither folds nor tubercles, is as large as all the others together, and striated at the base. The ground color of this shell is whitish, and there are delineated brown undulating or zigzag lines, more or less numerous, which descend from the top to the base of the whirls. Sometimes other bands upon the upper whirls form delicate rhombs. Aperture rather narrow, attenuated at its lower extremity, and as long as the other whirls united. The columella is smooth, straight and entirely white like the rest of the interior of the aperture. Right lip indistinctly crenulated.

Length 9 lines. Width  $3\frac{1}{2}$  lines.

Inhabits the seas of the Isle of France.

This shell, whose coloring is very beautiful, has not yet been figured; it is remarkable for its elongated form, and for the folds of the whirls, which give it a slight resemblance to our variety of the *BUCCINUM costatum*, pl. 11, fig. 37; but its form easily distinguishes it: it is more elongated, and never as large; besides, it has a less effuse aperture, and the surface is marked with longitudinal, undulating lines.

44. **BUCCINUM CRIBARIUM**, LAM. *The Sieve Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 929, fig. 24.

Pl. XVI, fig. 57.

*B. testâ parvulâ, oblongâ, cylindraceâ, lævi, fulvâ aut rufâ, albo-punctatâ; anfractibus subconnatis, margine superiore fasciâ albo et fusco articulatâ cinctis; spirâ apice truncatâ; aperturâ angustiusculâ; labro intus striato.*

Shell small, oblong, pretty thick, cylindrical, smooth, fawn colored or red, dotted with small, round, white dots, disposed regularly in quincunxes, or in a net work; spire composed of eleven whirls, generally truncated at the summit. The whirls are subconnate, surrounded at their upper part by an articulated band of white and brown; the lowest whirl ornamented towards its base with numerous transverse fine striæ. Aperture narrow, of a violet color. Lip obtuse, thick, almost straight, interiorly having small folds or teeth in large quantities. The upper extremity forms the commencement of an emargination. All the external surface of this shell is covered by a membranous, reddish, thin periosteum, so transparent, that the colors are seen through it.

Length 5 lines. Width 2 lines.

Inhabits the Indian Ocean, the island of Ascension, and the coasts of Gorée, where it is very abundant.

This pretty little species is the same as the *BUCCINUM Barnet* of Adanson; the shell, owing to differences of age and sex, presents some varieties in its form. This author remarked that young shells have, proportionally, less length, less thickness, and less spire; the extremity is at the same time less obtuse; the right lip thinner, sharp, and without teeth. He also observed, that, for the most part, the old shells which presented similar characters, were old females. Finally, he pointed out another peculiarity, common to all the specimens, which have attained the number of eleven whirls: the shell is broken at the extremity

of the summit, in such a manner as to leave not more than four or five whirls, and it is only in this state that it is commonly found in collections.

45. **BUCCINUM GERVILLII.** *Gerville's Buccinum.*

(Collect. MASS.) PAYR., Cat. de la Corse, pl. 8, fig. 21.

Pl. XIII, fig. 43 et 44 var.

B. testâ elongatâ, lævigatâ, subturritâ, fulvâ vel rubro-fuscescente: anfractibus convexo-planis, supernè punctis albis maculatis; aperturâ angustâ, violacescente; labro dextro tenui, intùs dentato.

Shell pretty thick, smooth, narrow, elongated, subturreted, formed of eight or nine slightly distinct roundish whirls, of a fawn color or more or less deep brownish red; some white spots, forming a sort of zone beneath the sutures. Aperture whitish, delicately shaded with a pale violet, rather small, narrow, terminated by a straight canal, short, and very slightly effuse at its extremity. Right lip thin and sharp; the internal edge denticulated. Columella lip covered in front by a pointed callosity, which partially conceals the striæ of the base of the lowest whirl, and exhibits a row of five or six small guttules. Sometimes these do not exist.

Length 7 lines. Width  $2\frac{1}{2}$  lines.

Inhabits the Mediterranean, the coasts of Provence, Corsica, and Sicily.

M. Payreaudeau first made us acquainted with this shell, but he improperly placed it among the Mitres, for it has not prominent folds upon the columella. Risso classed it as a PURPURA, in his work upon the productions of Southern Europe, and Blainville as a COLUMBELLA in his *Faune Française*; with the last genus it has some affinity; nevertheless, it has not so narrow an aperture, nor the swelling of the lip so prominent; on the contrary, this part, in his BUCCINUM, is effuse. It presents, also, several varieties of color, and some specimens are found

which are covered with small grayish points; but the most remarkable variety is that which we give, pl. XIII, fig. 44, upon which is beautifully delineated a foliaceous band which covers the whirls and the body of the shell.

46. **BUCCINUM CORNICULATUM**, LAM. *The Horn-like Buccinum.*

(Collect. MASS. LAM.) PAYR. Cat. pl. 8, fig. 10, 11, 12.

Pl. XVI, fig. 56; et pl. XIV, fig. 47, young.

B. testâ parvulâ, oblongo-conicâ, angustâ, lævi, nitidâ, corneâ, maculis fulvis aut rubris ornatâ; anfractibus connatis; labro intus dentato.

Shell small, pretty thick, oblong, cylindrical, subturreted, smooth, white or of a variegated color, marked with brown or bright fawn colored spots or waved and zigzag longitudinal lines; spire very pointed, composed of six or seven scarcely convex whirls; sutures indistinct. Aperture narrow, elongated, of an orange color; right lip pretty thin, denticulated within. Columella generally smooth, without guttules, at its base.

Length 6 to 7 lines. Width  $2\frac{1}{2}$  lines.

Inhabits the Mediterranean, the coasts of Provence, Corsica and Sicily.

This shell has altogether the aspect of the *BUCCINUM Gervillii*; and it is only after an attentive examination, that we finally discover the characters which serve to distinguish it from that. In the *B. corniculatum*, the denticulations of the right lip are less numerous, and the aperture is of an orange color, whilst, on the contrary, it is of a violaceous white in the *B. Gervillii*. Blainville had also placed this shell among the *COLUMBELLÆ*, which it somewhat resembles in the aperture, which is narrow in both species, and in the right lip, being very gently swollen towards its middle.

We shall give, at the end of this monograph, the situation which should be assigned to the shells which we shall have

described, so as to present the most natural series of groups or sections, which we can possibly form. In this manner, we shall indicate with clearness, the gradations by which we are led from one genus to another, as determined by the affinities which the animals and the principal characters of the shell present.

47. **BUCCINUM SEMICONVEXUM**, LAM. *The Semi-convex Buccinum.*

(Collect. MASS. LAM.)

Pl. XVII, fig. 60.

B. testâ ovato-conicâ, apice peracutâ, lævi, basi striatâ, pallidè rubente; anfractibus superne fusco maculatis, duobus infimis convexis, superioribus planulatis; labro intus dentato.

Shell ovate, conical, very pointed at its summit, of a pale red, often ornamented with longitudinal waved and distant bands; sometimes elongated spots appear upon the whirls of the spire, which are eight or nine in number; the lowest are convex. The base of the shell is marked with very fine, and very approximate striæ. Aperture ovate, elongated, of a whitish color. Right lip rounded, striated internally; columella arched and smooth.

Length 9 lines. Width 4 lines.

Inhabits

This shell is nearly allied to the *BUCCINUM corniculatum*; it differs, nevertheless, in several points; it is larger, more ventricose, and the lowest whirl of the spire is more convex, and slightly depressed at its upper part.



48. **BUCCINUM CLAUSILIFORME**, NOBIS. *The Clausilia-shaped Buccinum.*

(Collect. MASS.)

Pl. XIII, fig. 46.

B. testâ parvâ, fusiformi, castaneâ, transversim tenuissimè striatâ; anfractibus convexiusculis, supernè longitudinaliter plicatis, atris et albis maculis cinctis; aperturâ angustâ, ovatâ, fuscescente; labro dextro tenui, intùs striato.

Shell small, spindle-shaped, of a chestnut color, covered with numerous fine, transverse striæ; nine slightly convex whirls to the spire, the upper longitudinally plaited; sutures pretty apparent, edged with small black and white slightly elongated spots. Aperture narrow, ovate, brownish; right lip thin, delicately striated within. Columella slightly arcuated and smooth, forming a small canal, emarginated at base.

Length 6 lines. Width 2 lines.

Inhabits the Mediterranean, the coasts of Provence, and the Isle of Hières.

This singular little shell has the aspect of a *CLAUSILIA*, on which account we give it the name. It has also some resemblance to the *BUCCINUM Gervillii* of Payreaudeau, but it is particularly distinguished by its more narrow and more elongated form, by the transverse striæ which cover its whole surface, and above all, by its size, which is smaller than that of this last species.

49. **BUCCINUM AURANTIUM**, LAM. *The Orange Buccinum.*

(Collect. MASS. LAM.) MART., Conch. 4, t. 125;  
fig. 1188-1189?

Pl. XXV, fig. 101.

B. testâ minimâ, ovato-acutâ, longitudinaliter et tenuissimè plicatâ, obsoletè decussatâ, luteo-aurantiacâ, apice rubrâ; anfractibus convexo-planis; aperturâ angustiusculâ.

Shell very small, ovate, oblong, attenuated at its extremities,

*Buccinum.*

D

of an orange yellow color; spire pointed, composed of seven sub-convex whirls, bearing upon their whole surface numerous longitudinal folds, intersected by fine transverse and approximate striæ. The striæ of the lowest whirl a little more distinct towards the base. The sutures ornamented, near the edge, with a row of small granulations; separated by a transverse furrow. Aperture whitish, ovate, narrow, contracted at its base; right lip denticulated.

Length 5 lines. Width 2 lines.

Inhabits the coasts of the Island of Java.

The form of this small species is the same as that of the *B. pulchellum* of Blainville; it differs from it, nevertheless, by its more prominent folds, the granulations around the sutures, and, above all, by its invariably uniform coloring, of an orange yellow.

50. **BUCCINUM PULCHELLUM**, BLAINV. *The Pretty Buccinum.*

(Collect. MASS. et WOLD.) BLAINV. *Faune Franç.*, pl. 7, fig. 4.

Pl. XVIII, fig. 68.

B. testâ oblongâ, subturritâ, fulvescente, fusco variâ; anfractibus convexiusculis, longitudinaliter tenuissimè plicatis, transversim striatis; aperturâ albâ, elongatâ, angustâ; labro dextro intùs denticulato.

Shell oblong, lanceolate, subturreted, of a whitish or reddish color, beautifully varied with simple or decussated brown spots or lines, forming sometimes a very elegant net-work, spire composed of six pretty distinct whirls, slightly swollen; numerous longitudinal folds, slightly projecting, and crossed by decurrent striæ, almost amounting to folds, at the base of the last whirl. Aperture whitish, elongated, narrow; right lip rather thin, indistinctly denticulated within.

Length 4 lines. Width  $1\frac{1}{2}$  lines.

Inhabits the Mediterranean, the coasts of Sicily, and the Indian Seas.

The name of this little shell indicates its beauty ; it is colored in a delightful manner. It was described by Blainville from a specimen in the collection of Deshayes, which was found in the Mediterranean. M. Woldemar possesses in his, several specimens of the same species, which were brought to him from the Indian Ocean. These are a little more elongated, the longitudinal folds, and the transverse striæ are very distinct, whilst in some from the Mediterranean the folds and the striæ are very indistinct. In this case they resemble very much the *B. dermestoidæum* of Lamarck. I think the shell figured by Turton in the *Zoölogical Journal*, t. 2, pl. 13, fig. 8, under the name of *PURPURA picta*, p. 365, should be referred to this species.

51. **BUCCINUM DERMESTOÏDEUM**, LAM. *The Dermestoid Buccinum.*

(Collect. MASS. LAM.)

Pl. XXV, fig. 100.

B. testâ parvâ, ovato-oblongâ, lævi, nitidâ, albidâ, lineis rufis reticulatâ ; anfractibus convexiusculis, fasciâ rubrâ ad margines albo-crenatâ cinctis ; spirâ obtusiusculâ ; aperturâ angustatâ.

Shell small, ovate, oblong, smooth, polished ; spire somewhat obtuse, composed of five or six slightly convex whirls, of a whitish color, and covered with small, ocellated, reddish points, forming an indistinct net-work ; the sutures are surrounded above by a small band of alternating white and red spots, while the lower part is marked by another brown band, sometimes broken by distant white spots. The middle of the lowest whirl is surrounded by a sub-crenulated red band, interrupted by white spots ; at the base of the whirl are seen transverse striæ, and a small brown band. Aperture ovate ; right lip thin, and slightly denticulated.

Length 4 lines. Width 2 lines.

Inhabits the Mediterranean, the coast of Agde, and of Corsica.

This little shell is one of the most remarkable of the genus, on account of its delicacy of texture, and of its coloring. Its ornamented bands, interrupted by spots of a regular form, render it charming to the eye.

52. **BUCCINUM LACTEUM**, NOBIS. *The Milky Buccinum.*

(Collect. WOLDEMAR.)

Pl. XXVIII, fig. 67.

B. testâ ovato-conicâ, parvâ, tenui, lævi, diaphano-albâ; suturis prominulis; anfractibus convexis, basi obscuro-albidè maculatis; ultimo spirâ majore, basi striato, maculis distantibus ad medium cincto; aperturâ ovatâ; labro dextro intus denticulato, extus crassato.

Shell small, pretty thin, ovate, conical, smooth, of a diaphanous white; sutures indistinctly apparent; spire composed of six convex whirls, ornamented at their base with spots of a duller white; the lowest whirl as large as all the others, striated at base, and surrounded, towards the middle, with small, distant spots, articulated by a reddish line; aperture ovate; right lip denticulated within, and thickened outwardly, even to the base of the shell.

Length 4 lines. Width 2 lines.

Inhabits the Indian Seas.

Risso, in his work upon the productions of Southern Europe, gives, under the name of *PLANAXIS lævigata*, page 175, number 448, the description of a species which seems to approach the *B. lacteum*. He notices it as having been found upon the coasts of Provence in the Mediterranean.

The shell which we have just described is very nearly allied to the *B. dermestoidæum*. It differs, however, in this, that it is never folded exteriorly, and it is always of a remarkable white.

53. **BUCCINUM GLANS**, LINN., GMEL. *The Shining Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 981, fig. 40.

Pl. XV, fig. 52.

B. testâ ovafo-conicâ, tenui, lævi, nitidâ, albescente, lineis spadiceo-fuscis distantibus cinctâ; spirâ anteriùs longitudinaliter plicatâ; labro basi repando, margine inferiore denticulis muricato.

Shell ovate, conical, rather thin, smooth, whitish, with spots of a more or less dark red, and upon the lower whirl, a very large spot of the same tint, but deeper: upon the convexity of this whirl, may be counted nine or ten distant, parallel and transverse lines of a bright chestnut-color, sometimes brown, at other times blackish; spire composed of eight whirls, the three lower of which are smooth, and the other five marked with small longitudinal folds, slightly arcuated. Aperture ovate, widened towards the base, which is deeply emarginated, terminated above by a small dilated canal, which is formed by a re-entering angle from the right lip, and a transverse tooth from the left lip; the right lip is arcuated towards the top, thinner from the middle to the base, and armed in this part with five conical, pointed teeth, the lowest of which are longest; it is ornamented in the interior with a great number of small, very fine transverse striæ. The left lip forms a plate which laps over upon the body of the shell, and gives rise to a small projecting keel, which is terminated below by a pointed and oblique tooth, from whence a rounded fold is given out, which is observed to wind spirally into the cavity.

Length 2 inches. Width 11 lines.

Inhabits the Indian Ocean.

This shell is one of the most beautiful of the genus which we are describing; its elegant form, and the regular distribution of the bands which adorn its whole surface, distinguish it in a manner altogether peculiar.

54. **BUCCINUM SUTURALE**, LAM. *The Sutured Buccinum.*

(Collect. MASS. LAM.) CHEMN. pl. 125, fig. 1199-1200.

Pl. XXIV, fig. 96.

B. testâ ovato-conicâ, lævi, nitidâ, albâ, luteo-nebulosâ; anfractibus convexiusculis, prope suturâs noduliferis, supremis longitudinaliter plicatis; aperturâ lævi; labro posticè denticulato.

Shell ovate, conical, smooth, shining, whitish, sometimes of a flesh color, marked with spots, and oftentimes with reddish lines or flammules; spire composed of seven slightly convex whirls, with noduliferous tubercles near the sutures; the first four or five are marked with small longitudinal folds; the others have pretty fine, distant, transverse brown lines, as many as eight or nine upon the lowest whirl: upon the base of this are observed delicate furrows. Aperture ovate, rounded, white, smooth, terminated above by a small, dilated canal, which is formed by a re-entering angle from the right lip, and a transverse tooth from the left lip. The right lip is effuse, arcuated, thin, armed at the base with five or six small denticulations. The left lip consists of a plate which laps over a little upon the body of the shell, and forms a small keel. Columella smooth.

Length 13 lines. Width 6 lines.

Inhabits the coasts of the Isle of France.

This shell so strongly resembles the *B. glans*, that it ought, unquestionably, to be united to that species. It has all its characteristics, and the only differences which can be perceived, are doubtless attributable to age or locality. The shell we have just described is much smaller, the color less deep, the transverse lines less marked; the tubercles near the sutures are also very prominent upon the last whirls, whilst they are but indistinctly seen, or disappear altogether in the *BUCCINUM glans*.

55. **BUCCINUM ELEGANS**, NOBIS. *The Elegant Buccinum.*

(Collect. MASS.)

Pl. XXIV, fig. 97.

*B. testâ ovato-conicâ, crassiusculâ, nitidâ, lævi, albescente, lineis longitudinalibus distinctâ; anfractibus convexis, supernè plicatis et infernè maculatis; aperturâ albâ: labro dextro crasso, intùs striato.*

Shell ovate, conical, thick, shining, smooth, whitish, ornamented with numerous undulated and reddish longitudinal lines; spire composed of eight or nine convex whirls: the upper ones plaited, and the others marked at their upper part with white and brown spots or blotches, alternately disposed, and surrounding the suture; a band a little deeper colored covers the body of the lowest whirl, the base of which is furnished with pretty distinct transverse striæ or furrows, five or six in number. Aperture white, ovate, terminated above by a sort of canal, indicated by a transverse ridge upon the left lip; right lip thick, slightly denticulated towards the base, and deeply striated within. Columella arcuated, the base spirally folded; the left lip covers it, extends slightly upon the body of the shell, and forms a small, projecting keel, terminated by small drops, and a raised point.

Length 11 lines. Width 6 lines.

Inhabits the Indian Ocean.

Not being able, from a single specimen, to point out with precision the place this shell should occupy, it is with diffidence that I establish it as a species; it has striking resemblances to the *B. suturale*; yet it is distinguished from it by peculiar characters; it has no nodosities, appears to be much thicker, and has the whirls of the spire less distinct. Finally, there are upon the internal part of the lip very close and very apparent striæ, which are not found in the *B. suturale*.

56. **BUCCINUM SEPIMENTUM**, RANG. *The Partitioned Buccinum.*(Collect. MASS.) RANG, *Magasin de Zoölogie*, 1832, pl. 18.

Pl. XVIII, fig. 66.

B. testâ ovatâ, conicâ, ventricosiusculâ, solidâ, lævigatâ, cœrulescente : singulis anfractibus cinguliferis; ultimo bicingulifero; epidermi virescente; spirâ acutâ; aperturâ ovatâ, albescente, elongatâ; columellâ arcuatâ, callosâ.

Shell ovate, conical, slightly ventricose, attenuated at summit and base, pretty solid, nearly smooth; general color, of a bluish ash, ornamented with a deeper band upon each whirl, and upon the lowest, with two others, distant, and more obvious; epidermis greenish; spire pointed, composed of five or six distinct, convex whirls; the lowest, much larger than all the others together, presenting at the base a pretty deep decurrent suture. The aperture is whitish, ovate, elongated, terminated at the base by a very oblique emargination, and above by a canal formed by the prolongation, upon the columella, of a callosity which becomes there a thin sharp plate: this plate presents the appearance of a partition extending towards the left lip; the right lip is much elongated, thin and sharp. Columella arcuated, covered by a callosity which extends a little upon the body of the shell; from the middle arises a ridge which descends obliquely nearly to the base of the right lip, where it terminates within by a small elevation.

Length 8 lines. Width  $3\frac{1}{2}$  lines.

Inhabits the Bay of St. Anthony, Prince's Isle, where it is found at great depths.

M. Rang, a distinguished conchologist, first made known this singular shell, which he had collected in his voyage of circumnavigation. It appears to be closely allied to the *Purpuræ*, and particularly to the division *MONOCEROS*, which it approaches by the oblique ridge at its base.



57. **BUCCINUM PAPILLOSUM**, LINN. *The Tuberculated Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 969, fig. 23.

Pl. XV, fig. 54.

B. testâ ovato-conicâ, crassiusculâ, in fundo fulvo-fuscescente, tuberculis albis seriatis creberrimis undiquè obsitâ; aperturâ albâ; labro dextro infernè denticulis muricato.

Shell ovate, conical, thick, composed of eight convex and subcarinated whirls; the whole surface ornamented with small tubercles formed like rounded papillæ, eight transverse rows of which appear upon the lowest whirl, four upon the second, and three only upon those of the spire; they gradually diminish in size towards the summit, which is generally of a rose color. Aperture white, ovate, rounded, terminated at its upper part by an angle of the right lip, and a thick ridge of the left lip, which form a canal: the emargination at the base is oblique. Right lip thick, furnished upon its edge with six or seven spinose teeth, and in the interior with numerous transverse striæ, very fine, and slightly apparent. Left lip smooth, and obliterated above; it forms a convex varix at the base, and terminates near this point by a straight and somewhat pointed projection. The general color is whitish or reddish, marked upon the convexity of the lowest whirl, with a large red or fawn-colored spot, the rest of the spire sometimes sprinkled with other smaller spots of the same color.

Length 1 inch 9 lines. Width 10 lines.

Inhabits the Indian Ocean, the coasts of Tranquebar, Java, and Madagascar.

The noduled tubercles which exist upon this shell render it easily known, and serve to distinguish it from other species to which its form has some resemblance.

58. **BUCCINUM OLIVACEUM**, BRUG. *The Olive-colored Buccinum.*

(Collect. MASS. LAM.) FAVANE, Conch, pl. 33; fig. K-2.

Pl. XV, fig. 53.

B. testâ ovato-conicâ, rufo-fuscescente aut olivaceâ, lævi, basi transversè sulcatâ, primâ ætate longitudinaliter plicatâ et transversè striatâ; aperturâ ovatâ, albescente; labro dextro crasso, extûs marginato, intûs striato.

Shell ovate, conical, of a reddish or olive color, composed of eight or nine whirls, the lowest of which composes nearly half of the shell; it is smooth, slightly arcuated, and oftentimes ornamented upon each whirl with a whitish band. When young, it is marked with convex, longitudinal folds, which are intersected at the base of the lowest whirl only, by five or six pretty deep transverse striæ; upon the upper whirls the folds are much more close, and also more prominent, than upon the lowest, where they oftentimes disappear altogether. The edge of the aperture is whitish, ovate, notched at both ends, the cavity of an ash color; the notch above is small, placed upon the upper edge of the right lip, where it is contracted to the form of a small canal; the emargination of the base is arched; right lip thick, margined exteriorly, crenulated indistinctly upon the lower edge, and marked within with very distinct, transverse striæ. The left lip is continued in front, in a thin leaf which extends a little over the columella: it is smooth interiorly, and edged throughout its whole length with a row of small drops.

Length 1 inch 9 lines. Width 10 lines.

Inhabits the seas of the Antilles at Guadaloupe, the Indian Seas at Ceylon, and the coasts of Chili.

When the specimens of this species are young, the longitudinal ribs are very prominent upon the whole shell, and the transverse striæ are very numerous and very approximate; they are effaced by age. The coloring is sometimes whitish near the

right lip. Specimens have been found in the South Seas, on the coasts of Chili, nearly seven inches in length.

59. **BUCCINUM UNICOLORUM**, NOBIS. *The Single-colored Buccinum.*

(Collect. MASS.)

Pl. XIX, fig. 69.

B. testâ ovato-conicâ, lævi, cinereo-albidâ, unicoloratâ; anfractibus supernè plicatis, ultimo paulò majore; spirâ basi sulcatâ; aperturâ ovatâ, albâ, intùs fulvâ; labro dextro crasso, infimè arcuato, marginato, intùs striato.

Shell ovate, conical, smooth, of a uniform ashy white color; spire composed of eight whirls; the upper ones slightly plaited, the lowest pretty large, marked with more or less straight, longitudinal lines, approximate, and of a color a little deeper and reddish; base ornamented with six or seven furrows; aperture ovate, white, fawn-colored within; right lip thick, arcuated towards the base, elevated exteriorly into a thick, very prominent margin; within striated throughout its whole length; left lip thick, and partially covering the columella, which is adorned with guttules one half of its length; the first of these guttules, which is uppermost, is much more marked than the others. At the base of the columella is found a very prominent fold, terminated by a guttule formed like a flattened point.

Length  $1\frac{1}{2}$  inches. Width 8 lines.

Inhabits

This shell, at first sight, would seem to differ essentially from the *B. olivaceum*; its form is more elongated, it has not the striæ upon the whirls of the spire, and, finally, its whitish color appears particularly to distinguish it from the last. These considerations have caused us to regard it as a different species, and yet we are not confident that new observations may not lead to certain gradations which will unite it to the *B. olivaceum*.

60. **BUCCINUM CANALICULATUM**, LAM. *The Channeled Buccinum.*

(Collect. MASS. LAM.) MART., CHEMN., pl. 125,  
fig. 1194-1195.

Pl. XXII, fig. 89.

B. testâ ovato-conicâ, supernè longitudinaliter plicatâ, basi striatâ, palidè fulvâ, interdùm castaneo-bizonatâ; anfractibus supernè canaliculatis, duobus infimis dorso lævibus; aperturâ ovatâ, albâ, fundo fuscâ; labro dextro crasso, intus striato.

Shell ovate, conical, somewhat ventricose, of a pale fawn color, spire composed of eight whirls; upper ones longitudinally folded, and slightly striated transversely; the two lower ones smooth, convex and strongly canaliculated; the lowest furrowed at the base, and frequently ornamented about the middle with two bands of a chestnut-color. Aperture ovate, white, cavity brown; right lip thick, denticulated upon the edge of the lower part, striated within; left lip gives rise to a thin and elevated callosity upon the edge of the columella, and towards the top a very prominent transverse fold, forming the commencement of a canal.

Length 17 lines. Width 8 lines.

Inhabits the Indian Ocean.

This shell, which has been established as a species by Lamarck, should, I think, be again united to the *B. olivaceum*, and should be regarded as a constant variety, either of sex or locality. In some specimens the whirls of the spire are less canaliculated, and the longitudinal folds slightly appear, as in the species to which I presume they belong.

61. **BUCCINUM CRENULATUM**, BRUG. *The Crenated Buccinum.*

(Collect. MASS. LAM.) PETIVER. GAZ., t. 64, fig. 8.

Pl. XXIII, fig. 90 et pl. XIV, fig. 49 var.

B. testâ ovato-conicâ, longitudinaliter plicatâ, transversim tenuissimè striatâ, variè coloratâ, fasciis rufo-fuscis pictâ; anfractibus supernè angulatis, suprâ complanatis, ad angulum crenulatis; aperturâ ovatâ, albescente, supernè angustatâ; labro dextro supernè emarginato, intus striato.

Shell ovate, conical, whitish, ashy or reddish, oftentimes with two brown bands which are sometimes interrupted; spire formed of seven or eight distinct whirls, flattened above, furnished with longitudinal, almost perpendicular folds, which are themselves intersected by striæ visible only in the interstices of the folds, except towards the base, and upon the whirls at the top of the spire. The upper edge of the whirls is flattened, and bordered by rounded tubercles, which are separated from the longitudinal folds by a deep stria running below them. Aperture ovate, whitish, contracted at the top by a transverse fold of the left lip. The right lip is emarginated at its upper edge, marked interiorly with transverse striæ in great numbers. The left lip is obliterated and flattened at its summit; it gives rise from the middle to the base to a pretty thick, projecting callosity, in the form of a keel.

Length 14 lines. Width 7 lines.

Inhabits the Indian Ocean.

This species presents a great number of varieties; in young specimens the color is deeper; the transverse brown bands are more marked, and appear upon all the whirls; the shell has also, proportionally, a more globular form. Other specimens are of an uniform color, have the whirls strongly canaliculated, and the longitudinal folds more approximate. We give a figure of one of these last pl. 14, fig. 49.

62. **BUCCINUM HIRTUM**, NOBIS. *The Rough Buccinum.*

(Collect. MASS.)

Pl. XIX, fig. 72.

B. testâ ovato-conicâ, subturritâ, rufescente, fuscis lineolis transversim maculatâ; spirâ acutâ; costulis eminentibus longitudinaliter ornatâ, ultimo anfractu ætate evanescentibus; aperturâ albâ, subrotundatâ, emarginatâ, supernè angustatâ; labro dextro crasso, extus marginato.

Shell ovate, conical, subturreted, spire pointed, and sutures deep, ornamented in its whole extent, with projecting longitudinal ribs, slightly oblique, pointed at their summit, raised and continued upon the lowest whirls which they crown. These whirls are more convex. The ribs of the lowest gradually disappear with age. At the base of this whirl are observed also ridges, and very prominent granulations. The aperture is subrotund; white, emarginated and narrowed at the top by a transverse fold of the left lip, and by an angle of the right lip. Right lip thick, accompanied at its external part, by a very apparent margin, and furnished internally with numerous fine striæ. The external color of this species exhibits a reddish ground, with irregular spots, and transverse lines of a deeper tint. The band which surrounds the middle of the lowest whirl is much wider and darker colored.

Length 1 inch. Width 6 lines.

Inhabits the coasts of New Holland, the Isle of Tonga-Tabou.

This singular shell appears to be intermediate between the *BUCCINUM crenulatum* and the *Port Jackson Buccinum*. It resembles the first in its form, and the second in its coloring.

63. **BUCCINUM JACKSONIANUM**, NOBIS. *The Port Jackson Buccinum.*

(Collect. MASS.) GUALTIERI, pl. 125, fig. E.

Pl. XIX, fig. 73.

B. testâ ovato-conicâ, brevi, acutâ, longitudinaliter plicatâ, luteo-olivaceâ, albo rufo-maculatâ; ultimo anfractu ad medium lævigato, anticè transversim striato; aperturâ subrotundatâ, albescente; dextro labro crasso, intus tenuissimè striato.

Shell ovate, conical, spire short, pointed, composed of seven or eight convex whirls, noded at their upper part, ornamented upon their whole external surface with slightly undulated longitudinal folds. Oftentimes the folds upon the lowest whirl disappear partially upon the edge of the right lip, and this whirl presents at its base a few striæ which intersect the folds crosswise, and thus form granulations. Aperture sub-rotund, whitish, a little narrowed above. Right lip thick, accompanied by a slightly prominent external varix; the internal part of the lip marked with numerous fine striæ.

Length 10 lines. Width 5 lines.

Inhabits the seas of New Holland at Port Jackson, where it is quite common.

The general color of this shell is of a greenish gray, with transverse lines more deeply colored. Upon the longitudinal folds there are white and reddish spots, which give them the appearance of articulated tubercles. This peculiar coloring easily distinguishes it from other species.

64. **BUCCINUM FASCIATUM**, LAM. *The Banded Buccinum.*

(Collect. MASS. LAM.) GUALTIERI, pl. 43, fig. M.

Pl. XXII, fig. 86.

B. testâ ovato-conicâ, apice acutâ, longitudinaliter plicato-granulosâ, transversim striatâ, albâ vel cinereâ aut lutescente; fasciis transversis diversimodè coloratis; labro intus dentato.

Shell egg-shaped, elongated, variously colored, of ash, yel-

lowish or fawn-color, sometimes without spots, but oftener with transverse brown bands which surround the suture, the middle and the base of the lowest whirl. The spire is conical, composed of eight or nine whirls slightly inflated, shagreened upon its entire surface by very apparent granulations, disposed in series, and forming a large number of folds or longitudinal ridges, with transverse striæ; the folds, which are parallel to the length of the shell, are more numerous than those which cross it. Aperture ovate, round, brownish or whitish. Lip straight, thick, ornamented internally with small denticulations. Columella arcuated, covered by the left lip, which is furnished with guttules at its base.

Length 10 lines. Width 5 lines.

Inhabits the Mediterranean, the rocks of the Island of Teneriffe, the Canaries and the Azores; the coasts of New Holland, Van Diemen's Land, and of the South Sea.

This species, which is well characterized by its granular folds, presents some varieties, both in the color of the cavity of the shell, and in that of its bands. Upon some the rows of tubercles are equal, and then its whole surface is shagreened. In others the longitudinal folds are more prominent, more distant, and the tubercles less apparent; the general color of these does not resemble that of the first: it is brown, and whitish bands take the place of the deeper bands of the others. The whirls are also more prominent in those specimens which are found in the South Sea.

The young of this species, like the other *Buccina*, have the lip thin, and the columella without a callosity.

All these differences have caused, improperly, a division of this *BUCCINUM* into several species, and even into several genera. Risso, in his work upon the productions of Southern Europe, has formed his genera *NESÆA* and *LECHESIS* out of young specimens of the *BUCCINUM fasciatum*; and his *MITRELLA marminea*, also, is nothing more than a young specimen of this last species.



65. **BUCCINUM RETICULATUM**, LINN., GMEL. *The Reticulated Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 966, fig. 21, a.

Pl. XXIII, fig. 91, and pl. XIX, fig. 71, var.

B. testâ ovato-conicâ, longitudinaliter plicatâ, striis transversis decussatâ, subgranulosâ, variè coloratâ; anfractibus convexo-planis; aperturâ rugosâ et dentatâ.

Shell egg-shaped, elongated, rounded, obtuse at its lower extremity, pointed at the upper extremity; it is moderately thick. Spire conical, composed of eight or nine whirls, almost flat, or slightly swollen, but distant from each other; their surface is deeply chequered by longitudinal folds, crossed by numerous striæ. Aperture moderate, white and ovate; right lip thick, ornamented within with seven or eight striæ, of which those of the middle are generally the largest. Columella slightly arcuated, covered with a thin, brilliant plate. The color of this shell is of a yellowish white, reddish or chestnut-color, with a blackish blue band, passing beneath the suture.

Length 15 lines. Width 7 lines.

Inhabits all the seas of Europe, the Island of Teneriffè, the Azores, and the coasts of Madagascar.

This species, one of the most common of the genus, varies much in its coloring, and offers quite a number of varieties, either in its form, or in its whitish color, which is sometimes uniform, and at others ferruginous. Some specimens are elongated, others, on the contrary, are of a globular appearance, a distinction, which, I suspect, is sexual. The most remarkable variety is that upon which the striæ are less marked, which gives it also a less reticulated appearance, as may be seen in our figure 71, pl. 19.

*Buccinum.*

E

66. **BUCCINUM MONILE**, NOBIS. *The Necklace Buccinum.*

(Collect. MASS.) MONTAGU, p. 243, pl. 8, fig. 1.

Pl. XI, fig. 40.

B. testâ ovato-conicâ, lævi, nitidâ, albescente, fasciâ roseâ transversim cinctâ; anfractibus convexis, longitudinaliter tenuissimè costatis; suturâ ornatâ tuberculis moniliformibus; aperturâ ovatâ, albâ, angustatâ; labro dextro intus striato; columellâ callosâ.

Shell ovate, conical, smooth, polished, whitish; a decurrent band of a rose color is seen beneath the suture, and three others surround the middle of the lowest whirl; that of the middle is broader and more apparent. Spire composed of seven slightly convex whirls, ornamented with longitudinal ribs formed like folds, numerous and slightly elevated. The upper edge of the whirls is a little flattened. The base of the lowest is accompanied with two distinct ridges. The suture is edged with rounded tubercles situated between each fold, where they form a sort of necklace. Aperture ovate, white, contracted above by a transverse fold of the callosity. Right lip sub-truncated, somewhat denticulated upon the lower edge, marked with transverse striæ internally. Columella edge covered by a pretty thick callosity, spreading a little upon the belly of the shell.

Length 11 lines. Width  $5\frac{1}{2}$  lines.

Inhabits the coasts of England at Purbeck and at Weymouth, and those of New Guinea.

With some doubt, Quoy and Gaimard gave this species as a variety of the *BUCCINUM coronatum*, in their *Voyage de l'Astrolabe*, p. 44, pl. 32, fig. 11-12. Indeed, it is very distinct from this last, by its more elongated form, by the tubercles which border the whirls of the spire, and by its longitudinal folds. The specimen referred to by the authors we have quoted, was covered with a ferruginous red tint.

Dr. Pulteney found a specimen of this species at Purbeck, upon the coasts of England. Montagu says, also, that it is found at Weymouth, but rarely.

67. **BUCCINUM GUALTERIANUM**, NOBIS. *Gualtieri's Buccinum.*

(Collect. MASS.) GUALTIERI, pl. 51, fig. 1.

Pl. XIX, fig. 70.

B. testâ ovato-conicâ, griseo-cinereâ, acutâ, longitudinaliter plicatâ, transversim striatâ; ultimo anfractu convexiore; aperturâ ovatâ, violaceâ; labro dextro intus striato.

Shell ovate, conical, of an ash-gray color; spire pointed, composed of six or seven whirls, the lowest of which composes alone nearly half of the shell; this is swollen, and slightly compressed above. The other whirls are somewhat convex, except the last but one; their surface is ornamented with eleven or twelve distant, prominent, rounded, longitudinal folds, intersected transversely by fine compact striæ. Aperture ovate, slightly oblique, of a violet gray; right lip furnished interiorly with numerous striæ which are continued even to the depth of the cavity. Columella smooth and whitish, with a pretty prominent fold at the base.

Length 1 inch. Width 6 lines.

Inhabits the Isle of New Ireland.

We refer to this species, a shell described and figured by Quoy and Gaimard under the name of *PURPURA nassoides*. *Voyage de l'Astrolabe*, page 564, pl. 38, fig. 10-10.

The specimen which was made use of by those naturalists, appears to us to be the same shell, only smaller, and in a less perfect state of preservation; for it presents precisely the same characters as that of which we have just given a description.

68. **BUCCINUM OLIVIFORME**, NOBIS. *The Olive-formed Buccinum.*

(Collect. MASS.)

Pl. XXV, fig. 99.

*B. testâ* ovoïdâ, subgranulosâ, crassiusculâ, olivaceâ; spirâ altiusculâ, longitudinaliter exilibus, transversim multiplicibus striis ornatâ; aperturâ ovalâ, intus cœrulescente; labro dextro lævi, tenui, intus striato.

Shell ovoid, subgranular, somewhat globular, not very thick, spire moderately raised, composed of six rounded whirls, furnished with longitudinal striæ, slightly marked and crossed by numerous transverse striæ; suture indistinct. Aperture ovate, of a bluish gray within, and somewhat truncated at the base, which is slightly emarginated: right lip smooth, thin, delicately striated internally. Columella smooth, somewhat excavated. This shell is of an uniform olive color; the distribution of the striæ which cover it, is constantly the same.

Length 10 lines. Width 5 lines.

Inhabits North America.<sup>4</sup>

This shell was brought from New York, without its precise locality being pointed out. The texture of the shell, and the upper whirls, which are often carious, would indicate that this species inhabits fresh water, like the *Melanopsides*.

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<sup>4</sup> Wood, in the Supplement to his Index, published in 1828, figures this species, plate 4, as the *BUCCINUM Noveboracensis*. A very accurate description of this shell, which abounds in brackish water along our whole northern coast, at least, together with the organization and habits of its inhabitant, was read by the lamented Thomas Say, before the Academy of Natural Sciences of Philadelphia, in 1821, and published in their Journal the following year, under the name of *NASSA obsoleta*—this name will undoubtedly be retained by the American Conchologist. The transverse striæ are constant, but the longitudinal striæ are usually wanting, and are often replaced by folds running the whole length of the shell, resembling in these respects *B. undatum*. Kiener's description applies to the young shell.—TR.

69. **BUCCINUM BRASILIANUM**, LAM. *The Brazil Buccinum.*

(Collect. MASS. LAM.) WOOD, Catal. suppl., pl. 4. fig. 29.

Pl. XVII, fig. 59.

B. testâ ovato-oblongâ, crassiusculâ, lævissimâ, albâ ; anfractibus convexo-planis, connatis ; labri limbo striato.

Shell ovate, oblong, thick and smooth ; the external surface is entirely white or ash colored, polished, covered with a thick reddish brown epidermis. Spire composed of six or seven slightly elongated whirls, somewhat convex, and united by a very fine, regular, linear suture. Aperture ovate, terminated at the base by a shallow emargination. Right lip simple, sharp-edged, expanded, furnished with fine transverse striæ internally : left lip smooth, arcuated lengthwise, and partially covering the columella.

Length 8 lines. Width  $4\frac{1}{2}$  lines.

Inhabits the coasts of Brazil in the Bay of Rio Janeiro.

This species is remarkable for its dilated aperture, and for the reflection of its right lip, which gives it some affinity to the genus *PLANAXIS*. Wood, in his catalogue, has called it *BUCCINUM lævigatum*.

70. **BUCCINUM GAYII**, NOBIS. *Gay's Buccinum.*

(Collect. MASS.)

Pl. XXI, fig. 79.

B. testâ parvâ, elongatâ, conicâ, crassâ, rufescente ; anfractibus convexiusculis, distinctis, longitudinaliter tuberculose plicatis, transversim tenuissimè striatis ; aperturâ subrotundatâ, albescente ; labro dextro intus striato ; columellâ lævi, arcuatâ.

Shell small, elongated, conical, pretty thick, formed of six distinct, slightly convex whirls. The surface of the upper whirls appears to be shagreened by very small tubercles, form-

ed by a multitude of very approximate longitudinal folds and transverse striæ. Upon the lowest whirls the longitudinal folds disappear, and the transverse striæ, on the contrary, become more apparent. Suture simple, accompanied by a small, very narrow scaffolding, formed by a row of granulations, a little larger, and like papillæ. Aperture subrotund, whitish. Right lip smooth at its edge, striated internally. Columella arcuated and smooth. The general color of this shell is of an uniform red brown.

Length 7 lines. Width 3 lines.

Inhabits the coasts of Chili, where it is very common.

This shell, which was brought from Chili by M. Gay, a naturalist, has some resemblance to the *BUCCINUM reticulatum*, yet obvious differences easily distinguish it. It has the whirls less convex, the folds less prominent; it is much smaller, its coloring is not the same, and, finally, it has, around the suture, tubercles which are not found in the *B. reticulatum*.

Young specimens of this species have more prominent longitudinal folds, which are continued quite to the base of the lowest whirl.

71. **BUCCINUM PEDICULARE**, LAM. *The Pedicular Buccinum.*

(Collect. MASS. LAM.) CHEMN., pl. 125, fig. 1186-1189.

Pl. XXV, fig. 102.

B. testâ minimâ, ovato-conicâ, lævigatâ, lineis albidis et spadiceo-fuscis alternis eleganter cinctâ; spirâ acutâ; aperturâ rotundatâ.

Shell very small, ovate, conical, smooth, diaphanous, colored with white, elegantly ornamented upon its whole surface with pretty numerous, narrow, transverse lines, of a blackish brown; spire composed of six slightly convex whirls; the lowest is inflated, and larger than all the others united; suture linear, very fine; aperture subrounded, violet color; within are perceived the external colored lines. Right lip simple, thin, sharp; the

edge is expanded, marked with brown lines. Columella smooth and arcuated.

Length 3 lines. Width 2 lines.

Inhabits the coasts of England, and the West India Seas.

Da Costa says that this little shell is found at Cornwall, where it is very common; and Dr. Pulteney maintains, also, that it is very abundant upon the coast of Dorsetshire.

This very small shell had been described and figured in several old works, under the name of *BUCCINUM lineatum*. Lamarck, not being aware of this circumstance, gave it the name of *BUCCINUM pediculare*, which has been retained by conchologists.

72. **BUCCINUM SULCATUM**, NOBIS. *The Furrowed Buccinum.*

(Collect. MASS.)

Pl. XIII, fig. 45.

B. testâ parvâ, ovato-conicâ, luteo-albidâ, transversim tenuissimè striatâ; spirâ elongatâ; aperturâ ovatâ, albidâ; labro dextro crassiusculo, intus transversim striato; epidermi rufescente.

Shell small, ovate, conical, spire elongated, formed of six distinct whirls, furnished with numerous, transverse, pretty fine striæ; these striæ are regular and beautiful; there are none upon the two upper whirls, which are smooth. Suture apparent; the stria which borders it, is a little more distant than the others, and of an obscure color. Aperture ovate, whitish; right lip thickish, marked internally by transverse striæ; columella slightly arcuated, partially covered by a thin brilliant plate. Epidermis reddish. The shell is of an uniform yellowish white color.

Length 7 lines. Width  $3\frac{1}{2}$  lines.

Inhabits

This shell is very remarkable for the numerous fine striæ which completely cover it. Its uniform color renders it easily distinguishable.

73. **BUCCINUM PUNCTATUM**, NOBIS. *The Dotted Buccinum.*

(Collect. MASS.) CHEMN., pl. 125, fig. 1179.

Pl. XIV, fig, 51.

B. testâ parvâ, ovato-conicâ, albidâ, fuscis fasciisculis tenuissimè ordinatis transversim distinctâ; anfractibus convexiusculis; aperturâ ovatâ, albidâ; labro dextro crassiusculo, intùs striato.

Shell small, ovate, conical, whitish, covered with very numerous small brown spots, arranged in transverse series. Two rows of spots, more distinct, and of a deeper color, are observed upon the lowest whirl. The spire is composed of six whirls, which are slightly convex; the third is ornamented with numerous, projecting, longitudinal folds; the others are smooth. Aperture ovate, white; right lip thickish, striated internally; left lip covering the columella throughout its whole length.

Length 4 lines. Width 2 lines.

## Inhabits

This shell is one of the most beautiful of the genus **BUCCINUM**. The distribution of its numerous dots, arranged in transverse series, gives it a very pleasing appearance.

74. **BUCCINUM FASCIOLATUM**, LAM. *The Belted Buccinum.*

(Collect. MASS. LAM.) PAYR., Cat. de la Corse, pl. 8, fig. 7, 8, 9.

Pl. XVII, fig. 61, 62, var. A, 63, var. B.

B. testâ ovato-conicâ, lævigatâ, rubente; anfractibus convexiusculis; subconnatis, ultimo zonis duabus cærulescentibus remotis cincto; labro intùs striato.

Shell ovate, conical, thick, smooth, pointed at its summit, spire composed of six or seven slightly distinct whirls; suture moderately deep, a few transverse striæ at the base of the



lowest whirl. Aperture pretty large, ovate, violet colored or chestnut, dilated towards the middle ; right lip sharp, denticulated within. Left lip thick, and partially covering the columella in its whole extent. Epidermis thin, of a greenish or reddish brown, and beneath are perceived transverse zones, and spots of a slate or violet gray color, with a decurrent white band, articulated with brown or bay-colored spots upon the suture.

Length 9 lines. Width  $4\frac{1}{2}$  lines.

Inhabits the Mediterranean, the coasts of Southern France, of Sicily and of Corsica ; where it is found in great abundance upon the rocks which bound the shore.

This species has been described and figured by Payreaudeau in his *Catalogue de la Corse*, p. 160, pl. 8, fig. 7, 8, 9, under the name of *BUCCINUM Cameilli* ; by Blainville, who united it to his *BUCCINUM corniculum* in the *Faune Française*, p. 183, pl. 6, B, fig. 5, 5, A, and by Risso, who called it *PLANAXIS olivacea*. The form of the shell varies little ; but not so the size and color : some specimens remain invariably smaller, with more apparent zones, and of a blackish brown color, the spots and the edge of the right lip of a dull white : we give a figure of them, pl. 17, fig. 62. Others present a variety of the same size, upon which the bands are no longer apparent ; the shell is then covered with reddish spots upon a rose white ground : these small points often run together into undulating, longitudinal lines.

A third variety is very remarkable for its deep black color ; we have represented it, pl. 17, fig. 63. Numerous pretty fine transverse striæ cover its whole surface, and whitish spots surround the base of the suture. Finally, there are others which are of a straw color, and upon which the bands are scarcely to be seen.

It also sometimes happens, but very rarely, that the type species has upon the lowest whirl, pretty numerous and strongly prominent longitudinal folds. (Gualtieri, pl. 43, fig. P).

75. **BUCCINUM UNIFASCIATUM**, NOBIS. *The One-Banded Buccinum.*

(Collect. MASS.)

Pl. XIV, fig. 50.

B. testâ ovato-conicâ, elongatâ, nitidâ, luteo aut fulvo-albidâ; anfractibus convexusculis, tenuissimè plicatis, transversè striatis; aperturâ ovatâ, albidâ; labro dextro crasso, intùs dentato; columellâ albâ, arcuatâ.

Shell ovate, conical, elongated, polished, spire composed of seven pretty distinct, but slightly convex whirls, ornamented with numerous deeply furrowed folds; the folds of the lowest whirl are gradually effaced by age, and sometimes completely disappear. These folds are crossed by very fine and very numerous transverse striæ, colored with articulated, elongated, brown and whitish spots; the striæ of the base are more strongly prominent. Aperture ovate, whitish; right lip thick, denticulated internally. Columella white, arcuated, with a few guttules at its base. The general color is of a yellowish white, or fawn-color, with a brown, decurrent band above the suture, and a single other at the middle of the lowest whirl, like a girdle.

Length 9 lines. Width 4 lines.

Inhabits the Mediterranean, on the coasts of Sicily.

This species seems to resemble the *BUCCINUM Cuvieri*; and it would be well to regard it as a local variety of that; nevertheless, there is an essential difference between the two shells; it consists in the very marked transverse band upon the lowest whirl of the *B. unifasciatum*, which induced me to give it that name, and its size, which is double that of the *BUCCINUM Cuvieri*.

The *One-banded Buccinum* presents, also, in itself, some varieties of color. Some specimens are of a straw-yellow, and sometimes they have not the transverse band; others, in which the band is slightly apparent, have longitudinal spots upon strongly marked transverse striæ, of a dull white.

76. **BUCCINUM CUVIERI**, PAYR. *Cuvier's Buccinum.*

(Collect. MASS.) PAYR., *Cat. de la Corse*, p. 163, pl. 8, fig. 17-18.

Pl. XX, fig. 74, 75, var. A, 76, var. B.

B. testâ parvâ, ovato-conicâ, nitidâ, pellucidâ, acutâ, luteo-albidâ, longitrorsum tenuiter plicatâ, transversè striatâ; anfractibus convexiusculis, margine superiori albis, fusco-castaneis, aut fusco-cærulescentibus; aperiturâ albâ; labro dextro crasso, intus striato.

Shell small, ovate, conical, rather shining, pointed; spire formed of six or seven indistinct whirls, often ornamented with longitudinal folds, which are rarely continued to the base of the lowest whirl, and which are crossed by very fine and slightly marked transverse striæ. Aperture white; right lip thick, white externally, and denticulated within. Columella smooth, with two guttules at the base. The coloring of the shell is very various. The ground is generally of a yellowish white; the transverse striæ are accompanied with very fine lines, white and of a red bay color; reddish, or bluish brown spots, intersected with white, form zones upon the upper part of each whirl. At the base, and the middle of the lowest, the brown lines are more marked.

Length 6 lines. Width 3 lines.

Inhabits the Mediterranean, the coasts of Southern France, and of Corsica, where it is very common.

This **BUCCINUM** varies so much in its coloring, that some authors, deceived by the different shades of the shell, have divided it into several species. Payraudeau, in his *Catalogue des Coquilles de la Corse*, pl. 8, fig. 15, 16, has established a species under the name of **BUCCINUM Ferrusaci**, the greater part of the characters of which belong equally to that which he had already called **BUCCINUM Cuvieri**, the same we have just described. In the *Ferrusaci* of that author, the longitudinal folds, which are prolonged upon the lowest whirl, are more prominent, the color

almost uniform, and the spots are only formed upon the upper part of the whirls, instead of covering the whole surface of the shell. See our plate 20, fig. 75.

Specimens are also met with which are nearly black. Blainville, in the *Faune Française*, pl. 6, B, fig. 4-4A, has figured this variety under the name of *BUCCINUM Ascanias*; but the description which he has added, p. 178, No. 15, by no means belongs to the figure exhibited. We figure it, pl. 20, fig. 76. Risso, in his work upon the productions of Southern Europe, has formed from the varieties of this species, his *PLANAXIS Beudantiana*, pl. 9, fig. 125; *PLANAXIS lineolata*, page 173, pl. 9, fig. 136; *PLANAXIS raricostata*, p. 174, pl. 8, fig. 106. Da Costa in his *Catalogue des Coquilles de la Sicile*, proposes to unite the two species of Payraudeau, and to give the type species the name of *BUCCINUM elegans*. As for us, we shall retain his first name of *BUCCINUM Cuvierii*.

77. **BUCCINUM SCALARIFORME**, VAL. *The Stair-formed Buccinum.*

(Collect. MASS.) CHEMN., pl. 188, fig. 1808-1809?

Pl. XXI, fig. 80.

B. testâ ovato-elongatâ, subturritâ, apice acutâ, albidâ; anfractibus valdè convexis, rotundatis, longitudinaliter plicatis, transversim tenuissimè striatis; aperturâ albâ, subrotundatâ; labro dextro tenui, intùs striato; columellâ arcuatâ.

Shell ovate, elongated, slightly turreted, pointed at the summit; spire composed of seven very convex rounded whirls, united by a shallow suture. Upon the whirls are regularly disposed longitudinal ribs or folds, crossed by numerous, fine, approximate striæ, which, by their mutual intersection, cover the surface of the shell. Aperture white, and slightly rounded. Right lip thin, striated internally; columella arcuated, covered by the left lip. The coloring is whitish, sometimes ornamented with transverse bands.

Length 14 lines. Width 7 lines.

Inhabits the Indian Ocean.

This shell approaches the *BUCCINUM Roissyi*; it is, nevertheless, distinguished by quite remarkable differences: it is larger, and has the whirls more convex and the longitudinal folds more prominent.

78. **BUCCINUM ROISSYI**, DESHAYES. *De Roissy's Buccinum*.

(Collect. MASS.) BELLANG., *Voy. aux Ind. Or.*, pl. 3, fig. 3-4.

Pl. XXI, fig. 82.

B. testâ elongata, subturritâ, angustâ, pallidè fulvâ clathratâ; anfractibus convexis, ultimo brevi; aperturâ minimâ, albâ; labro dextro intus striato; columellâ obliquè truncatâ.

Shell elongated, subturreted; spire long, pointed, formed of eight or nine convex whirls, chequered by longitudinal folds, and pretty numerous and very regular transverse striæ. The lowest whirl is short and subglobular. Aperture small, ovate, oblong, and white in all its parts. Right lip finely striated internally; columella cylindrical, obliquely truncated, and terminated at the base by a deep emargination, which is recurved towards the back of the shell. The coloring is a little remarkable: it is of an uniform, pale, fawn-color, but interrupted on the lowest whirl by an obscure and transverse whitish zone.

Length 9 lines. Width 5 lines.

Inhabits the Indian Ocean.

This rather rare species has been found only in the Indian Seas. Bellanger obtained it in his voyage to Pondicherry.

79. **BUCCINUM ORNATUM**, NOBIS. *The Ornamented Buccinum.*

(Collect. MASS.) CHEMN., pl. 124, fig. 168.

Pl. XXI, fig. 83.

B. testâ ovato-conicâ, apice acutâ, albo-violaceâ, rufo zonatâ; anfractibus convexis, lævibus, longitudinaliter plicatis, infimè et supernè striatis; aperturâ subovatâ, albescente; labro dextro marginato, intùs striato; columellâ arcuatâ, longitudinaliter guttatâ;

Shell ovate, conical, pointed at the summit; spire pyramidal, formed of six or seven distinct, smooth, convex whirls, covered with very prominent, convex, longitudinal folds, intersected only at the base, and upon the two or three upper whirls, by a few pretty deep transverse striæ. Upon these whirls the striæ become finer and more approximate; they rarely exist upon the whole surface; in like manner the longitudinal folds do not appear upon the right portion of the lowest whirl. The color is of a violaceous white; a dark red zone borders the suture, and a broader and browner band surrounds also the middle of the lowest whirl.

Length 10 lines. Width 6 lines.

Inhabits the Indian Ocean, the coasts of Tranquebar, of Córmandel, and the Island of Ceylon.

This shell, easily distinguished by its transverse bands, has also been figured in *Wood's Catalogue*, p. 23, fig. 120, under the name of *BUCCINUM stolatum*.

80. **BUCCINUM ASCANIAS**, BRUG. *The Ascanias Buccinum.*

(Collect. MASS. LAM.) GUALTIERI, Test., t. 44, fig. N.

Pl. XXVI, fig. 104.

B. testâ ovato-conicâ, longitudinaliter plicatâ, transversim striatâ, cinereâ aut luteo-fulvâ; anfractibus valdè convexis, ultimo spirâ breviorè; aperturâ rotundatâ; labro extùs marginato, intùs striato.

Shell ovate, elongated, subturreted; spire pointed, composed of

seven strongly convex whirls, furnished with longitudinal folds, quite apparent, intersected transversely by numerous, regular, fine striæ; aperture rounded and whitish; right lip thick, margined externally, and striated internally; columella arcuated, covered by the left lip, which is polished, and covered with small, delicate, raised striæ; the base strongly folded upon the back. The general color is of an ash-red, with a whitish band which covers the suture, and the middle of the lowest whirl.

Length 8 lines. Width 4 lines.

Inhabits the Mediterranean, the coasts of Naples, Sicily, and Barbary.

The distinction of this shell consists, especially, in the whirls, which are always very convex; but sometimes the band at the suture, and upon the middle of the lowest whirl, does not exist.

81. **BUCCINUM COCCINELLA**, LAM. *The Lady-bug Buccinum.*

(Collect. MASS. LAM.) MONT., *Test. Brit.*, pl. 8, fig. 4.

Pl. XXV, fig. 98; et pl. XX, fig. 77-78, var.

B. testâ parvulâ, ovato-conicâ, crassiusculâ, longitudinaliter et obliquè plicatâ, transversim tenuissimèque striatâ, colore variâ; anfractibus convexis; labro margine inflexo, crasso, intus dentato.

Shell pretty thick, ovate, elongated or conical, reddish, very variable in color, as, more or less deep fawn-color, blackish ferruginous, and sometimes whitish; whitish or brown spots upon the whirls; these are seven in number, distinct, inflated, folded throughout their whole length, and crossed by numerous pretty apparent striæ; aperture white, rounded, right lip thick, margined, marked with spots externally, and denticulated internally; columella arcuated, smooth. Left lip obliterated, flat, and a little raised near the base.

Length 7 lines. Width 4 lines.

Inhabits the Channel, on the coasts of France and England, the Atlantic, and the Mediterranean, where it is very common.

This shell is so variable in its form, which is more or less elongated, and particularly in its coloring, that some authors have subdivided it into several species. These infinite divisions in science are a perfect chaos, engrossing all our time and memory in the study of endless nomenclatures. It would be useful to compare together, as much as possible, species of the same latitudes; and if, in a series of specimens, we recognised only differences of size and color, to establish them accordingly, as local varieties; these differences usually depending, in fact, upon mere modifications, occasioned by the different places which they inhabit.

Montagu gives the shell we have described, *Test. Brit.*, p. 247, t. A, fig. 4, under the name of *BUCCINUM macula*. Payraudeau, in his *Catalogue de la Corse*, p. 157, pl. 7, fig. 23-24, names, likewise, *BUCCINUM macula* a variety which is more elongated than that of Montagu. We have figured it, pl. 20, fig. 78. This author gives the name *BUCCINUM Lacepedii*, to a variety smaller, and of an uniform color, which we give, pl. 20, fig. 77. The *PLANAXIS affinis* and *rosacea* of Risso, also, should be restored to this species.

82. **BUCCINUM MIGA**, ADANSON. *The Miga Buccinum.*

(Collect. MASS. LAM.) ADANS., *Voy. au Sénégal*, pl. 8, fig. 10.

Pl. XXII, fig. 87.

B. testâ ovatâ, longitudinaliter plicatâ, transversim minutissimè striatâ; albo-lutescente aut rubente, posticè rufo-zonatâ; plicis distantibus obliquis; anfractibus convexis; aperturâ subrotundatâ.

Shell ovate, conical, of an ash-gray color; ornamented with a reddish zone at the suture, and another, much wider and more deeply colored band, at the base of the lowest whirl; spire composed of seven rounded, swollen whirls, provided with ten or twelve distant and slightly oblique folds, marked also by a great number of transverse striæ, which intersect the



folds at right angles, and become more apparent near the base of the lowest whirl. Aperture whitish or violet colored, nearly round; right lip slightly margined, covered internally with transverse striæ. Columella arcuated, and twisted at its base; left lip, which partially covers it, is indistinctly striated, and forms a wrinkle at the upper part.

Length 18 lines. Width 5 lines.

Inhabits the coasts of Barbary, and of Western Africa.

This species, which is nearly related to the *BUCCINUM ascanias*, ought to be united to it; for it differs from it only in the form of the lowest whirl, which is more ventricose, and by the longitudinal folds, which are a little more separated.

83. *BUCCINUM AMBIGUUM*, MONT. *The Ambiguous Buccinum.*

(Collect. MASS.) MONT., *Test. Brit.*, pl. 9, fig. 7.

Pl. XXI, fig. 81.

B. testâ parvâ, brevi, conico-globulosâ, colore variâ, fulvo fasciatâ aut maculatâ, plicis longitudinalibus striisque transversim subtilioribus undulatis decussatâ; anfractibus convexis, carinatis; aperturâ albâ, suborbiculatâ; labro dextro marginato, intus striato.

Shell small, short, conico-globular, color slightly variable, whitish or reddish, marked with fawn-colored bands or isolated spots of the same color; spire composed of six or seven convex whirls, keeled and strongly folded. The whirls are distant and swollen near the suture; it has, also, upon its entire surface, fine and numerous transverse striæ. Aperture whitish, suborbicular; right lip margined, marked with brown spots and striated internally; columella arcuated; the base strongly recurved.

Length 7 lines. Width 4 lines.

Inhabits the Channel, the coasts of England, the Mediterranean.

*Buccinum.*

nean, the coasts of Provence, the Isles of Hières, and those of Sicily.

This little shell is closely allied to the *BUCCINUM coccinella*; nevertheless, it differs from it by the shortening of the whirls, and by the more separated and more elevated folds, at their upper part.

84 *BUCCINUM GEMMULATUM*, LAM. *The Pearled Buccinum.*

(Collect. MASS. LAM.) PETIVER, *Amb.*, pl. 64, fig. 7.

Pl. XXII, fig. 84.

B. testâ ovali, ventricosâ, longitudinaliter plicato-granosâ, striis impressis transversè decussatâ, albâ, rubro-nebulosâ; suturis excavatis; spirâ breviusculâ; aperturâ rotundatâ; columellâ basi granulosâ; labro intus sulcato.

Shell ovate, ventricose, spire pointed, composed of six or seven convex whirls; it is ornamented upon its whole surface with granular, longitudinal folds, and transverse striæ. Suture very distinct, formed by a small canal, and bordered with closer tubercles, principally upon the lowest whirl, which is very much inflated, and composes almost half of the shell. Aperture rounded; right lip arcuated, thin, folded upon the edge, ornamented internally with raised striæ, which are continued within the shell. Left lip expands upon the columella, which is truncated towards the top, and extends like a raised lip towards the base; it is covered lengthwise by two or three slightly marked, oblique folds. The interior of this shell is of a diaphanous white, like the surface, which, moreover, is covered with reddish clouds.

Length 1 inch. Width 9 lines.

Inhabits the Indian Sea.

The series of pearl-like tubercles which cover this shell, and its coloring, of a brilliant white, mingled sometimes with rose spots, particularly in young specimens, give it a most pleasing appearance.

85. **BUCCINUM ABBREVIATUM**, WOOD. *The Tun Buccinum.*

(Collect. MASS.) CHEMN., pl. 153, fig. 1463, 1464 et 1466.

Pl. XXVI, fig. 105.

B. testâ ovatâ, ventricosâ, albescente vel castaneâ, albo et fulvo fasciatâ, transversim striatâ; spirâ brevi; suturâ canaliculatâ; aperturâ albâ, subrotundatâ; labro dextro tenui, crenulato, intus striato.

Shell ovate, ventricose, of a whitish or chestnut color, marked sometimes with deeper spots; suture deep and canaliculated, the exterior edge of which is slightly rounded and surrounded by a white band, alternated with fawn-colored blotches. Spire scaffolded, formed of six or seven nearly flat whirls; the lowest, on the contrary, is very convex, and larger than all the others united. Upon the surface of this shell, are seen equal, raised striæ. Aperture white, sub-rotund, narrowed at the upper part, dilated inferiorly; right lip thin, crenulated upon the edge, and marked interiorly with very prominent transverse striæ; columella arcuated, covered by the left lip, which is obliterated, flattened and corrugated above; it forms, from the middle to the base, a thick and projecting callus, which is terminated by a very apparent fold, and by two guttules.

Length 13 lines. Width 10 lines.

Inhabits the Indian Ocean, the coasts of Senegal, and of America.

This shell is very remarkable for its globular form, and for the upper whirls, which sink within each other, with a pretty distinct suture. It has some resemblance to the *CASSIS canaliculata* of Bruguière.

86. **BUCCINUM RETUSUM**, LAM. *The Blunt Buccinum.*

(Collect. MASS. LAM.) CHEMN., Conch., t. 153; fig. 1465.

Pl. XXIV, fig. 94.

B. testâ ovato-abbreviatâ, transversim minutissimè striatâ, rufescente aut violaceâ, variè maculatâ, albo fasciatâ; spirâ brevi, turgidâ, apice retusâ; aperturâ albâ, infernè dilatâ; labro intus striato.

Shell ovate, slightly cylindrical, blunted at its summit; spire short, flattened, composed of five whirls; the two last much more swollen, and covered upon their whole surface with very fine and very close transverse striæ; suture very apparent, and a little canaliculated; aperture white, ovate, narrowed at its upper part, dilated inferiorly; right lip thin, ornamented interiorly with numerous transverse striæ; columella smooth, arcuated at base, covered throughout its whole length with the left lip, the base of which is a little thicker. The surface of this shell is reddish or violet-colored, with wide, reddish spots. It is ornamented at the upper part of the whirls, and along the suture, with a white band, alternating with irregular deeper spots.

Length 11 lines. Width 8 lines.

## Inhabits

This shell so much resembles the preceding that we have brought them together; the only difference, which can be observed, is in the form of the lowest whirl but one, which is more convex, and larger; it has also finer and more numerous transverse striæ.

87. **BUCCINUM MUTABILE**, LINN., GMEL. *The Girdled Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 975, fig. 30.

Pl. XXIV, fig. 93.

B. testâ ovato-conicâ, lævi, nitidâ, basi striatâ, supernè longitudinaliter plicatâ, fulvo aut luteo-nebulosâ, ventricosâ; anfractibus convexis, propè suturas fasciâ albo et rufo articulatâ cinctis; spirâ exsertâ, apice acutâ; labro intùs striato.

Shell ovate, conical, smooth, slightly ventricose; spire composed of seven whirls, rounded and swollen at the upper part, especially the lowest, which is larger than all the others united. The three upper whirls are finely plaited; the lower whirl has a few fine, transverse striæ near the base. Aperture white and ovate, pretty strongly emarginated, and oblique at the base; the depth of the cavity chestnut-colored; right lip thin, white, very finely striated internally; left lip thin, white and shining, partially covering the body of the shell. Columella arcuated, terminated at the base by a sharp, and slightly projecting keel. The exterior of the shell is red or fawn-colored, ornamented with an articulated band of white and violet upon the upper edge of the whirls, with waved longitudinal yellow or red spots, the tint of which is sometimes very deep, and often very pale.

Length 15 lines. Width 9 lines.

Inhabits the Mediterranean, the coasts of France, of Corsica, of Naples, of Sicily, and the Adriatic Sea.

This shell, which is very common, presents somewhat remarkable varieties of color. Sometimes its ground is red; and white, undulated, very crowded flames, or brown and distant longitudinal lines ornament it from one end to the other; at other times it is whitish, which happens when it has been a long time exposed to the light; and in this case transverse striæ are perceptible on its surface; but the articulated band about the suture always ap-

pears in each of these varieties. Blainville (*Faune Française*, p. 182), considers the *BUCCINUM inflatum* of Lamarck as a sexual variety of the *BUCCINUM mutabile*. We agree in opinion with this naturalist; there is no difference between the two shells.

88. **BUCCINUM RUFULUM**, NOBIS. *The Reddish Buccinum.*

(Collect. MASS. LAM.) *Encycl. Méth.*, pl. 394, fig. 4, A-B.

Pl. XXIV, fig. 95.

B. testâ ovatâ, ventricosâ, læviusculâ, rufâ; anfractibus convexis, ultimo supernè basique striato; spirâ brevi, apice obtusiusculâ; labro simplici, infernè repando.

Shell ovate, ventricose, almost smooth, of an uniform red color; spire formed of six or seven convex whirls, covered upon their whole surface with very fine transverse striæ, which are not apparent upon the middle of the lowest whirl; spire rather short, slightly obtuse at its summit; aperture whitish; right lip thin, smooth; left lip extends upon the body of the last whirl; columella smooth and arcuated. The tint of this shell inclines a little to a brick-color.

Length 1 inch. Width 8 lines.

Inhabits the Mediterranean?

This shell appears to me the same as the *BUCCINUM mutabile*; but as we find it in collections only in a sub-fossil state, it is to be supposed that its colors have disappeared; this sole difference excepted, we find the same characters, and above all the transverse striæ upon many of the specimens of this last *BUCCINUM*; upon others, also, there are no spots, and the reddish color appears only more pale.

The *Buccinum* which I have just described, has been called *ventricosum* by Lamarck. Having already a species of this name among the *BUCCINA*, I have thought it improper to retain it for this species.

89. **BUCCINUM PAUPERATUM**, LAM. *The Meagre Buccinum.*

(Collect. MASS. LAM.) GUALTIERI, pl. 44, fig. m.

Pl. XXIX, fig. 118.

B. testâ ovatâ, ventricosâ, crassiusculâ, longitudinaliter undatim plicatâ, transversim minutissimè striatâ, albescente; ultimo anfractu spirâ longiore, maculâ rufâ tincto; labro intus striato.

Shell ovate, ventricose, spire formed of six convex whirls, marked upon their surface with undulated, longitudinal folds, and very fine, transverse striæ, which form tubercles upon the whole length of the folds; these disappear upon the middle of the lowest whirl. Aperture white, sub-rounded; right lip slightly margined externally; columella arcuated, smooth; left lip thin, expanding upon the body of the lowest whirl. The color is fawn or whitish; a transverse band ornaments the upper edge of the suture; the lowest whirl, which is larger than the spire, has a large reddish spot, which is prolonged sometimes, into a band; rarely, there is another at the base of the shell.

Length 8 lines. Width 5 lines.

Inhabits the Pacific Ocean, and the Isle of Tonga-Tabou.

Quoy and Gaimard have figured, in their *Voyage de l'Astrolabe*, pl. 32, fig. 5-6, a shell of this species, which is a little larger than that which we have just described, and of an uniform reddish-yellow color; the longitudinal folds are also more prominent in their specimens, and are continued as far as the base of the lowest whirl. It was found at the last quoted locality.

90. **BUCCINUM MARGINULATUM**, LAM. *The Margined Buccinum.*

(Collect. MASS. LAM.) GUALTIËRI, pl. 44, fig. n.

Pl. XXIX, fig. 117.

B. testâ ovato-acutâ, plicis tenuibus longitudinalibus confertis striisque transversis decussatâ, subgranulosâ, colore variâ; anfractuum margine superiore crassiusculo, crenulato; spirâ exsertiusculâ; labro intùs striato.

Shell ovate, slightly ventricose; spire pointed, formed of six or seven whirls, rounded upon their upper part, separated by a pretty deep and slightly canaliculated suture. The whole surface is very regularly chequered by approximate, longitudinal striæ, and by other transverse striæ, not less regular than the first. Aperture white, callous, sub-rounded. Right lip thick, striated internally; columella covered by a wide, rather thick callosity, ornamented lengthwise with small, irregular wrinkles. The coloring of this shell is grayish, or of a pale, uniform fawn-color, presenting upon the whirls one or several transverse brown or whitish bands.

Length 8 lines. Width 5 lines.

Inhabits the Mediterranean, the coasts of Naples, of Barbary, and the Seas of Sunda.

Young specimens of this shell were brought from the last locality by Bellanger, who has given a figure of it, in his account of his voyage to the East Indies, pl. 3, fig. 6 et 7. Deshayes has given it the name of *BUCCINUM conoidale*. See also our pl. 27, fig. 109. This shell differs from the adult only in the right lip which is thinner, and in the callosity, which is less prominent.



91. **BUCCINUM POLYGONATUM**, LAM. *The Polygon Buccinum.*

(Collect. MASS. LAM.) *Voy. de l'Astr.*, pl. 32, fig. 28-29, var.

Pl. XXIX, fig. 119.

B. testâ ovato-conicâ, longitudinaliter costatâ, transversim minutissimè striatâ, olivaceâ, costis prominentibus; spirâ obtusiusculâ; aperturâ rotundatâ; labro extûs marginatô, intûs striatô.

Shell ovate, conical, spire composed of six or seven indistinct whirls, sub-convex, plaited throughout their whole length, crossed by fine and very close transverse striæ; those of the base more prominent; the longitudinal folds disappear insensibly upon the right side of the lowest whirl, at the upper part of which we find merely nodosities; aperture rounded, whitish; the cavity of a brown color, and marked by transverse bands; right lip bordered externally, and ornamented internally, with small, fine striæ; columella arcuated, covered with a pretty wide callosity, brown at its upper part, and white towards the base, which is adorned with small guttules. The coloring is olive, with a white or yellowish band. Upon the top of the lowest whirl, the folds and the tubercles are sometimes whitish.

Length 9 lines. Width 5 lines.

Inhabits the coasts of Brazil, and those of New Holland, at Port Jackson.

Quoy and Gaimard have given, in the Atlas to their Voyage, p. 32, fig. 28 and 29, a variety of this species, which we have also represented in our plate 27, fig. 107. This last differs only from the one we have just described, by the absence of folds upon the lowest whirl, and the indistinctness of the callosity. This variety comes from Port Jackson.

92. **BUCCINUM MURICATUM**, QUOY et GAIM. *The Spinous Buccinum.*(Collect. MASS.) *Voy. de l'Astr.*, pl. 32, fig. 32-33.

Pl. XXVII, fig. 110.

B. testâ parvâ, ovato-globosâ, luteâ, apice acutâ, longitudinaliter plicatâ, transversim echinatâ; aperturâ albâ; labro dextro crasso, intus striato.

Shell small, ovate, subglobular, spined, spire conical and pointed, composed of six or seven whirls; the lowest much larger than all the others; presenting on its exterior longitudinal folds, upon which are regularly disposed pointed, conical tubercles, which are of the same color as the rest of the shell. The first row of these spines is situated immediately beneath the suture; the last one obliquely intersects the base of the shell. Transverse striæ, pretty fine and numerous, are observed between each of the rows of the spines. Aperture white, semilunar. Right lip thick, furnished internally with fine striæ; columella nearly straight, covered by the left lip which forms a callosity. The color is uniform, of a white fawn, sometimes pale orange.

Length 7 lines. Width 4 lines.

Inhabits Cartaret Harbor at New Ireland.

This little shell, which is quite rare, in many respects resembles the *BUCCINUM subspinosum*; only it is a little more elongated, and the spires are more numerous. These two species have the aspect of some *RICINULÆ*.

93. **BUCCINUM SUBSPINOSUM**, LAM. *The Sub-spinous Buccinum.*

(Collect. MASS. LAM.)

Pl. XXVI, fig. 103.

B. testâ parvâ, ovato-conicâ, longitudinaliter plicato-tuberculatâ, transversim striatâ, griseo-fuscescente; tuberculis acutis, subspinosis; aperturâ rotundatâ; labro intus striato.

Shell ovate, conical, spire composed of six slightly convex

whirls, somewhat flattened at their upper part, ornamented with longitudinal, spinous folds; the lowest whirl supports two or three rows of spinous, distant tubercles; besides, the whole shell is crossed by pretty fine, transverse striæ; more apparent towards the base. Aperture sub-rounded; right lip margined externally, and striated internally. The color of this shell is grayish, with irregular transverse bands of a slate or violet color. The tubercles are sometimes white, and oftentimes brown lines cross them.

Length 7 lines. Width 4 lines.

#### Inhabits

This species is easily known by the rows of tubercles which cover almost its whole surface.

#### 94. BUCCINUM ARCULARIA, LINN., GMEL. *The Casket Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., p. 970, fig. 24.

Pl. XXVIII, fig. 115.

B. testâ ovatâ, ventricosâ, crassâ, cinereo-cærulescente, albo aut fusco fasciatâ; ultimo anfractu turgido, tuberculis coronato; anfractibus spiræ longitudinaliter grossèque plicatis; labro intus striato; columellâ arcuatâ, callosâ.

Shell ovate, ventricose, pretty thick, composed of six or seven flattened whirls, angular above, and the lowest of which forms of itself half the shell; this whirl is very much inflated, and furnished externally with thick, longitudinal, distant folds, which are intersected by transverse striæ; the upper extremity of each fold is terminated by a conical tubercle, sometimes separated from it by a transverse stria which divides it superficially into two. The upper whirls are convex, loaded also with compact folds and transverse striæ; but in these the tubercles are slightly perceptible, and upon some specimens not at all. Aperture ovate, white, terminated at the summit

by an excavated notch at the top of the right lip, and by a fold of the left lip. The depth of the cavity is brown or of a violet-color, marked with transverse, whitish bands. Right lip thin upon the edge, denticulated in a part of its length, deeply striated internally; columella arcuated, covered by the left lip, which is enlarged upon the body of the shell, and forms a semicircular callosity, often thick, polished, marked at the lower part by transverse guttules, and terminated by an oblique keel, which is prolonged to a point. The color of this shell is generally ash, externally; but sometimes it is bluish, ornamented with one or several transverse, white or brown bands; another brown band extends always between the tubercles of the lowest whirl. Operculum is oval and rounded, membranous and denticulated upon one of its edges.

Length 15 lines. Width 9 lines.

Inhabits the Indian Ocean and the Moluccas.

This shell, which is very common, often varies in its form: the whirls are more or less elongated, the longitudinal folds and the transverse striæ, sometimes completely disappear upon the lowest whirl, nevertheless, tubercles remain which cover this shell, and the furrows at the base, which are very well marked. The coloring varies equally, some specimens are entirely white; others, of an uniform reddish or chestnut color. The young of this species have folds and striæ much more prominent; in them the lip is thin, smooth, and the callosity does not exist upon the columella.

I shall here quote an observation of Quoy and Gaimard, upon the animals of the division of the *NASSÆ*, to which this shell belongs. "These animals," say these writers, "choose marine plants, where they seem to search for the small animals which are found there: they are very active, always in motion, easily raising themselves by the aid of their foot, when they are inverted; not seeking for deep water, but, nevertheless, rarely creeping to the open air.

95. **BUCCINUM PULLUS**, LINN., GMEL. *The Russet Buccinum.*

(Collect. MASS. LAM.) GUALTIERI, Test., pl. 44, fig. R.

Pl. XXVIII, fig. 114.

B. testâ ovato-acutâ, ventricosâ, plicis longitudinalibus tenuibus striisque transversis decussatâ, cinereo-cærulescente; anfractibus supernè angulatis; aperturâ subrotundatâ; labro intùs striato.

Shell ovate, ventricose; spire pointed, composed of six or seven whirls slightly angular at their upper part, loaded with very convex longitudinal folds near the suture; these folds are less prominent, and more flattened upon the right lip of the lowest whirl. It is intersected by numerous transverse striæ; the upper extremity of the fold is sometimes separated by a stria which divides them superficially. Aperture ovate, white, terminated above by an emargination of the right lip, and by a transverse ridge of the left lip. Right lip thin, slightly denticulated at the base, furnished with numerous striæ internally; columella arcuated, covered by the left lip, which conceals, by its expansion, a part of the body of the shell, and forms a large, white, and polished callosity. The color of this shell is whitish, ash or bluish, sometimes without spots or bands, at other times with two or three deeper bands which surround the whirls.

Length 1 inch. Width 8 lines.

Inhabits the Indian Ocean.

I think this shell is a variety of the *BUCCINUM arcularia*. Gualtieri has already made this union with reason, because it does not differ enough from the last to be a different species. The folds and the striæ cannot be considered as constant characters, and belong generally to young specimens; and this *BUCCINUM* differs only from the one we have just described, in the whirls being much less flattened.

96. **BUCCINUM CORONATUM**, BRUG. *The Crowned Buccinum.*

(Collect. MASS. LAM.) GUALTIERI, pl. 44, fig. C-D.

Pl. XXVIII, fig. 112.

B. testâ ovato-acutâ, crassiusculâ, dorso lævigatâ ; basi striatâ, cinereo-cærulescente, obscurè zonatâ ; anfractibus propè suturas tuberculatis ; labro posticè denticulis muricato, intùs striato.

Shell ovate, inflated, smooth, polished, of a variable color, bluish ash, reddish or brown, covered with narrow, white, longitudinal lines, irregularly spread over it ; a deeper zone surrounds the suture, and two or three others are found upon the lowest whirl, that of the middle much more marked, and sometimes the only one ; spire composed of six convex whirls, slightly flattened at their upper part, and crowned by a row of rounded tubercles ; the three or four upper whirls are folded longitudinally, and intersected by transverse striæ. Aperture ovate, notched at the top of the right lip, with a ridge upon the left. The depth of the cavity is brown, and marked with a whitish band. Right lip thin upon the edge, crowned throughout its whole length with small, short, and pointed denticulations, furnished internally with numerous transverse striæ ; columella arcuated, covered by the left lip which extends upon the body of the lowest whirl in a white, rather thick callosity, loaded towards the base with some slightly apparent guttules, and terminated by small spinous points.

Length 14 lines. Width 7 lines.

Inhabits the seas of Madagascar, and Port Dorey, at New Guinea.

This shell has some analogy with the preceding ; but several differences distinguish it : it is more elongated ; the last two or three whirls are smooth, and ornamented only around the suture, by tubercles oftentimes rounded ; finally, the callosity upon the body of the lowest whirl is much less prominent.

97. **BUCCINUM THERSITES**, BRUG. *The Thersites Buccinum.*

(Collect. MASS. LAM.) LIST., Conch., t. 971, fig. 26.

Pl. XXVIII, fig. 113.

B. testâ ovatâ, crassiusculâ, dorso valdè gibbâ, longitudinaliter partimque plicatâ, basi striatâ, olivaceâ vel pallidè cœrulescente, albo aut fusco fasciatâ; gibbo, lævi, maculato; labro crasso, intus dentato.

Shell ovate, thick, slightly triangular, gibbous upon the back, attenuated towards the extremities; that of the spire is more pointed; it is composed of seven whirls, the upper six of which are little convex, with very compact longitudinal folds; that of the aperture generally has folds only upon the side of the left lip. The opposite surface is smooth; the base of the lowest whirl is crossed by transverse striæ. Aperture white, subquadrate, longer than wide. The depth of the cavity is brown. Right lip thick, raised outwardly in the form of a collar, and furnished internally with transverse striæ. Left lip is blended with the right in a thick callosity which covers the first two or three whirls; upon the side of the aperture this callosity is ovate, polished, white, edged with reddish. The color is olive or bluish, marked upon the middle of the lowest whirl, with a transverse white or brown band, the edge of which is of a deeper color.

Length 10 lines. Width 6 lines.

Inhabits the seas of the Asiatic Ocean, and the Isles of Vanikoro and of Bourou.

Young specimens of this species have the longitudinal folds of the lowest whirl more prominent; the swelling of the back does not exist upon these young shells; the lip is thin, and the columella without callosity.

98. **BUCCINUM GRANIFERUM**, NOBIS. *The Grain-bearing Buccinum.*

(Collect. MASS. LAM.) LIST., pl. 972, fig. 27.

Pl. XXVII, fig. 111.

B. testâ parvâ, ovatâ, crassâ, globulosâ, albo-cinereâ, basi transversim striatâ, ordinatim tuberculatâ; spirâ conicâ, acutâ; aperturâ ovatâ, angusta, albâ; labro dextro crasso, intus striato.

Shell rather small, ovate, thick, globular, of an ash-white; spire conical, pointed, composed of six whirls, the lowest much larger than all the others; this whirl presents on its surface conical, distant tubercles, disposed in four series; a few transverse striæ ornament the base. The upper whirls have only a single row of tubercles. Aperture ovate, narrow, emarginated at the upper part, at its union with the right lip, which is thick, striated internally. Columella arcuated, covering the left lip, which is expanded into a white, thick callosity, covering the whole lower surface, and a portion of the upper whirls.

Length 7 lines. Width 5 lines.

Inhabits the East Indies.

The uniform color of this little shell, and its callosity, easily distinguish it.

99. **BUCCINUM CLATHRATUM**, NOBIS. *The Latticed Buccinum.*

(Collect. MASS. LAM.) *Voy. de l'Astr.*, pl. 32, fig. 25-26.

Pl. XXVII, fig. 108.

B. testâ parvulâ, subglobosâ, longitudinaliter plicatâ, transversim striatâ, granulosâ, fusco-rubente, ad medium ultimi anfractus fasciatâ; spirâ brevissimâ, acutâ; labro albo, intus striato.

Shell small, ovate, thick, slightly gibbous; spire short, pointed, composed of six slightly convex whirls, covered with



longitudinal folds and very approximate transverse striæ, which form flattened granulations; the lowest of these whirls is very large. Aperture ovate, emarginated at the upper part, at its union with the right lip, which is rather thin, and striated internally; columella arcuated, covered by the left lip, which is enlarged into a whitish, wide, and thick callosity, upon the body of the lowest whirl. The color of this shell is of a reddish brown, with one or two transverse bands upon the middle of the lowest whirl.

Length 7 lines. Width 5 lines.

Inhabits the China Seas, the coasts of New Ireland, and of Vanikoro.

This little shell has been described by Quoy and Gaimard, and figured in their *Voyage de l'Astrolabe*, pl. 32, fig. 25 and 26, under the name of *BUCCINUM globulosum*. Having already a *BUCCINUM* thus named, we have given to this the name of *clathratum*. Some specimens of this little shell are larger and more elongated; the gibbosity, nevertheless, exists, and the callosity is reddish, edged with a chestnut-colored band.

100. **BUCCINUM GIBBOSULUM**, LINN., GMEL. *The Gibbous Buccinum*.

(Collect. MASS. LAM.) LIST., Conch., t. 973, fig. 28.

Pl. XXVIII, fig. 116.

B. testâ ovatâ, crassâ, dorso gibbâ, lævi, cinereâ aut olivaceâ; spirâ brevi, acutâ; marginibus oppositis anteriùs usquè ad spiram decurrentibus.

Shell thick, smooth, ovate, somewhat gibbous upon the back of the lowest whirl, flattened and widened upon the sides; spire short, acute, formed of five or six whirls; aperture ovate, smooth and white; the interior of the cavity brown; right lip margined without, smooth within, joining towards the top a large polished callosity, by which the columella and inferior surface of the whirls are entirely covered.

*Buccinum*.

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The color is olive or of a brown fawn-color and ash, sprinkled with spots or clearer undulated lines; sometimes one or two transverse brown bands surround the lowest whirl. The edge of the callosity is always of a more or less deep orange color.

Length 8 lines. Width 6 lines.

Inhabits the Mediterranean, upon the shores of Corsica, and the Asiatic seas.

This shell varies in its form, which is more or less rounded, and in its coloring, which is often uniform, although those are found from the Mediterranean, which are of an ash-gray color; at other times deeper, and marked with numerous spots, such as in shells brought from the Indian Ocean. It is very common, but in collections is almost always found discolored, and entirely white. The *EIONE gibbosula* of Risso, *Europe mérid.*, p. 171, No. 438, fig. 50, is the same as the *BUCCINUM gibbosulum*.

101. **BUCCINUM NERITEUM**, LINN., GMEL. *The Nerita-formed Buccinum.*

(Collect. MASS. LAM.) PETIVER, *Amb.*, pl. 11, fig. 6.

Pl. XXIX, fig. 120.

B. testâ semi-orbiculari, convexo-depressâ, lævi, albido-fulvâ; ultimo anfractu ad peripheriam subangulato; spirâ retusissimâ; labro dextro lævi; aperturâ ovatâ, rufescente.

Shell hemispherical, smooth, depressed, convex above, flattened beneath; spire blunt, formed of four indistinct whirls, entirely smooth; aperture ovate, reddish, rather small, obliquely emarginated; right lip smooth, slightly margined; columella arcuated towards the middle, furnished with a wide, reddish, and almost circular callosity, which extends upon the body of the lowest whirl. The coloring is slightly variable, it is generally of a yellowish or reddish white, with brown lines, and two decurrent, interrupted, or articulated bands, one of which

surrounds the suture, and the other only borders the circumference. Epidermis thick and brown.

Length 6 lines. Width  $4\frac{1}{2}$  lines.

Inhabits the Mediterranean, upon the coasts of France, of Corsica, and of Sicily; the Adriatic, and the Ocean, towards the gulf of Gascony.

Risso, in his work on the South of Europe, has described two specimens of this species under the names of *CYCLOPE Donovaniana* and *CYCLOPE pellucidus*, p. 271, No. 718 and 719. These appear to be only worn and discolored specimens.

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The principle too often followed for the establishment of groups among shells, has given rise to many errors; these groups, arranged by an examination of the superficial characters of shells, comprise a great number of dissimilar species, belonging even to other genera; and species are rejected as distinct, which ought to be united. These characters, such as the color, the folds, the striæ, the whirls, run into each other in a manner so insensible, or differ so completely, that it is impossible by them to point out the limits between species.

Thus, in the genus *BUCCINUM*, which we have just been describing, we see numerous specimens, obviously varying in the longitudinal folds, tubercles, and transverse striæ, which are found upon their surface; in some, these folds, at first very prominent, disappear, and sometimes leave tubercles which shew the vestige of them; in others the striæ are less distinguished. Sometimes the whirls are strongly canaliculated, whilst upon other shells of the same species, the suture is scarcely apparent.

These variations depend upon differences of sex, of age, or of locality. But the same species invariably presents two characters which are constant, or at least subject to less variation, that of the general form, and the aperture of the shell, which, I think,

are the only sure guides, for the formation of groups, and their natural approximation. This is the principle which I have adopted, as establishing with most precision, those of the genus I have just described. I have pointed out in my table by a bracket, the species, which I think ought to be united, and form only varieties.

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NOTE. The following American species, not found in Kiener, together with the volumes in which they have been described, are here mentioned, for the convenience of our Conchologists.

*Buccinum ornatum*, Say. Described in Journal of the Academy of Natural Sciences of Philadelphia, vol. 2, p. 229.

*Nassa vibex*, Say. J. A. N. S., vol. 2, p. 231, and American Conch., No. 6, pl. 57, fig. 2.

*N. trivittata*, Say. J. A. N. S., vol. 2, p. 231.

*N. acuta*, Say. J. A. N. S., vol. 2, p. 234, and American Conch., No. VI, pl. 57, fig. 3.

*N. uncinata*, Say. J. A. N. S., vol. 5, p. 212, and American Conch., No. VI, pl. 57, fig. 1.

*N. alba*, Say. J. A. N. S., vol. 5, 212.

*N. lunata*, Say. J. A. N. S., vol. 5, 213.

## DIVISION OF THE BUCCINUM INTO TWO TRIBES AND NINE GROUPS.

## FIRST TRIBE.

SPECIES GENERALLY VENTRICOSE, SPIRE ELONGATED; APERTURE OVATE, STRONGLY EMARGINATED AT THE BASE; OPERCULUM HORN, UNGUIFORM, WITH CONCENTRIC ELEMENTS, SUMMIT MARGINAL.

*True Buccina.*

B. undatum, Lin., Gmel.	The waved Buccinum.
— ventricosum, Nobis.	— ventricose
— glaciale, Linn., Gmel.	— northern
— Lamarckii, Nobis.	Lamarck's
— fusiforme, Nobis.	The spindle-shaped
— Anglicanum, Martini.	— English
— fuscatum, Brug.	— dusky
{ — papyraceum, Brug.	— paper
{ — ligatum, Lam.	— bound
— testudineum, Chemn.	— tortoise-shell
— lineolatum, Quoy et Gaimard.	— lined
— globulosum, Nobis.	— globular
— lævissimum, Gmel.	— smooth
— violaceum, Quoy et Gaim.	— violet
— Delalandii, Nobis.	Delalande's
— viverratum, Nobis.	The civet
— tigrinum, Nobis.	— tiger
— alveolatum, Nobis.	— chequered
— costatum, Quoy et Gaim.	— ribbed
— Quoyii, Nobis.	Quoy's
— Paytense, Val.	The Payta
— cochlidium, Chemn.	— stair-case
— moniliferum, Val.	— collared
— callosum, Wood.	— callous
— annulatum, Lam.	— ringed

SPECIES VERY ELONGATE, WHIRLS SLIGHTLY CONVEX.

*Turreted Buccina.*

<i>B. serratum</i> , Dufresne.	The serrated Buccinum.
— <i>achatinum</i> , Lam.	— agate
— <i>politum</i> , Lam.	— polished
— <i>vittatum</i> , Linn., Gmel.	— granulated
— <i>Bellangeri</i> , Nobis.	Bellanger's
— <i>aciculatum</i> , Lam.	The needle-shaped
— <i>senticosum</i> , Linn.	— file

SPECIES OVATE, SLIGHTLY ELONGATE; APERTURE SOMEWHAT CANALICULATED AT THE BASE.

*Triton-formed Buccina.*

<i>B. Tranquebaricum</i> , Gmel.	The Tranquebar Buccinum.	
— <i>Coromandelianum</i> , Lam.	— Coromandel	
} — <i>undosum</i> , Quoy et Gaim.	— undulated	
	— <i>D'Orbigny</i> , Payr.	D'Orbigny's
	— <i>discolor</i> , Quoy et Gaim.	The discolored

SPECIES OVATE, SPIRE SHORT; APERTURE ELONGATED.

*Harp-formed Buccina.*

<i>B. lyratum</i> , Lam.	The lyre-shaped Buccinum.
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SPECIES WITH THE RIGHT LIP SOMETIMES SWOLLEN INTERNALLY.

*Columbella-formed Buccina.*

<i>B. distortum</i> , Wood.	The distorted Buccinum.
— <i>flexuosum</i> , Lam.	— flexuous
— <i>cribrarium</i> , Lam.	— sieve
— <i>semi-convexum</i> , Lam.	— semi-convex
— <i>Gervillii</i> , Payr.	Gerville's
— <i>corniculatum</i> , Lam.	The horn-like
— <i>clausiliforme</i> , Nobis.	— clausilia-shaped
— <i>aurantium</i> , Lam.	— orange
— <i>pulchellum</i> , Blainv.	— pretty
— <i>lacteam</i> , Nobis.	— milky
— <i>dermestoidum</i> , Lam.	— dermestoid
— <i>granum</i> , Lam.	— grain
— <i>lævigatum</i> , Linn., Gmel.	— variegated

## SECOND TRIBE.

SPECIES WITH THE APERTURE SUBROTUND, OPERCULUM DENTICULATED UPON ONE OF ITS EDGES.

*Nassæ-formed Buccina.*

{ B. glans, Linn., Gmel.	The shining Buccinum.
— suturale, Lam.	— sutured
— elegans, Nobis.	— elegant
— sepimentum, Rang.	— partitioned
— papillosum, Linn.	— tuberculated
{ — canaliculatum, Lam.	— channeled
— unicolorum, Nobis.	— single-colored
— olivaceum, Brug.	— olive-colored
{ — crenulatum, Brug.	— crenated
— fasciatum, Lam.	— banded
— reticulatum, Linn., Gmel.	— reticulated
— hirtum, Nobis.	— rough
— Jacksonianum, Nobis.	— Port Jackson
— monile, Nobis.	— necklace
— Gualterianum, Nobis.	Gualtieri's
— Blainvillii, Desh.	Blainville's
— oliviformis, Nobis.	The olive-formed
— Brasilianum, Lam.	— Brazil
— Gayii, Nobis.	Gay's
— pediculare, Lam.	The pedicular
— sulcatum, Nobis.	— furrowed
— punctatum, Nobis.	— dotted
— fasciolatum, Lam.	— belted
{ — unifasciatum, Nobis.	— one-banded
{ — Cuvierii, Payr.	Cuvier's

SPECIES SUBTURRETED; THE WHIRLS VERY CONVEX.

*Scalaria-formed Nassæ.*

B. scalariforme, Val.	The stair-formed Buccinum.
— Roissyi, Desh.	De Roissy's
— ornatum, Nobis.	The ornamented
{ — Ascanias, Brug.	Ascanias
{ — coccinella, Lam.	The lady-bug
— miga, Adanson.	— miga
— ambiguum, Montagu.	— ambiguous

## SPECIES WITH THE APERTURE ROUNDED, AND A VERY PROMINENT CALLOSITY.

*Cassis-formed Nassæ.*

B. gemmulatum, Lam.	The pearled Buccinum.
{ — abbreviatum, Wood.	— tun
{ — retusum, Lam.	— blunt
{ — mutabile, Linn., Gmel.	— girdled
{ — rufulum, Nobis.	— reddish
— pauperatum, Lam.	— meagre
— marginulatum, Lam.	— margined
— polygonatum, Lam.	— polygon
— muricatum, Quoy et Gaim.	— spinous
— subspinosum, Lam.	— subspinous
{ — arcularia, Linn., Gmel.	— casket
{ — pullus, Linn., Gmel.	— russet
— coronatum, Brug.	— crowned
— Thersites, Brug.	— Thersites
— graniferum, Nobis.	— grain-bearing
— clathratum, Nobis.	— latticed
— gibbosulum, Linn., Gmel.	— gibbous

## ANOMALOUS SPECIES, SEMI-ORBICULAR, DEPRESSED.

*Cyclops-formed Nassæ.*

B. neritoideum, Linn., Gmel.	The nerita-formed Buccinum.
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## GENUS DOLIUM, LAMARCK.

### THE TUN.

Shell thin, ventricose, inflated, generally globular, rarely oblong, encircled with ribs; spire short; right lip crenulated, and sometimes denticulated throughout its whole length; aperture oblong, very large, emarginated inferiorly; columella channeled; no operculum.

Testa tenuis, ventricosa, inflata, sæpius subglobosa, rarò oblonga, transversim cingulata. Spira brevis. Labrum per totam longitudinem dentatum vel crenatum. Apertura oblonga, amplissima, basi emarginata. Operculum nullum.

Animal very large, so as scarcely to be contained within its shell; the head is broad, swollen before, supporting two long, slender, obtuse, distant tentaculæ, dilated towards the base, where the eyes are situated. The mouth is large, muscular, strong and retractile. The respiratory tube is pretty stout; its cavity is capacious, entirely open, provided with two branchiæ placed on the left side, the larger of which, describes a pretty large semicircle. The trunk is cylindrical, very much developed, flexible, capable of being turned in every direction at the will of the animal, and of elongating itself in a remarkable manner; it is furnished internally with several rows of hooks. The foot is ovate, large, fleshy, bordering all parts of the shell; it is rounded, widened, lobed and dilated before, with a horizontal furrow. The posterior extremity has no trace of an

*Dolium.*

operculum. The generative organ of the male is very retractile, as in the *BUCCINUM*.

Almost all the species which form the genus *DOLIUM* were considered by the old conchologists, and particularly by Linnæus, as *Buccina*, on account of the general relations by which these shells are allied. This author brought together those which we are now describing, so as to form a small separate group, which he placed at the head of his great genus, *BUCCINUM*, placing those of the genus *CASSIS* immediately after them. Before him, however, d'Argenville, by observing the identical form of these shells and their marked distinction from those species with which they had been confounded, first thought of separating them, and distinguished them by the name of *DOLIUM*. But it was Lamarck who clearly settled the bounds of this separation, and presented to conchologists the precise formation of the genus, ever since established in science. Indeed, the shells which it contains have so peculiar a form, that it would be difficult to mistake them.

The genus *DOLIUM* comprehends a small number of species, some of which attain so remarkable a growth, that they are sometimes as large as a man's head. In fact the general appearance of the shell, of an inflated, thick-set form, calls up the image of a *tun*, whence is derived its generic name. Thus, the characters which make up these species are a form more or less inflated, girdled, and very globular; the spire being much shorter than the lower whirl, causes the size of the aperture, which almost always occupies two thirds of the length of the shell.

Denys de Montfort, in his *Conchyliologie Systematique*, has divided the *Tuns* into two groups; he comprised in the first the umbilicated species, which he called *PERDIX*; the second included the *DOLIUM*, properly so called, that is to say, the non-umbilicated species. This distinction, which is merely apparent, is produced by the development of the left lip; for the umbilicus always exists, although more or less distinct. Cuvier, in his *Animal Kingdom*, retained the two divisions of Montfort; but, according to his system, he still makes the *DOLIUM* one of the numerous sub-genera of *BUCCINUM*, thus bringing them back

to the state in which Linnæus had left them: he places them between HARPA and BUCCINUM. De Blainville has arranged them in his family Entomostomata, between HARPA and CASSIDARIA. This writer divides them into three sections: *first*, species having an ovate form, spire pretty prominent, right lip always thin, such as the DOLIUM *perdix* and *rufum* (I consider this last species only as a variety of the *perdix*, or as an injured specimen); *second*, those with a short spire, more ovate and more globular, of which the *galea* and *olearium*, present examples; *third*, the *Cassis-formed tuns*, always oval, more or less globular, with very distant ribs, the right lip bordered, and the columella twisted at its extremity, such as the DOLIUM *maculatum*, *fasciatum*, *variegatum* and *pomum*.

Latreille, in his work, *Familles Naturelles, &c.*, includes the Tuns, the Harps, and several other genera in a single family of his order Gasteropoda, to which he gives the name of *Dolium-formed*. I agree, in some respects, with the opinion of this writer, that the approximation which he makes of the Harps and the Tuns appears natural, and founded upon a very important character, that of the absence of the operculum in both genera. But, I think that they should form not one family, but a separate division, and therefore I shall class them among the Purpurifera, of which they should certainly make a part, on account of their affinity to all the other genera comprised in this family. I retain for my division the term *Dolium-formed*, because I separate from the family of the same name, the genera MONOCEROS, CONCHOLEPAS, and PURPURA, which I refer to the Buccinoidea of the same author.

With regard to the divisions which De Blainville has established in the genus which I am examining, I think they are founded upon characters too variable and too superficial for me possibly to adopt. I have replaced them by the two groups of which I have spoken, and which I thus characterize: the first, with the right lip always thin, and undulated; the second, with the right lip more or less thickened by the margin, and pretty strongly denticulated. I have thought that a shell which Valenciennes had determined under the generic name of MALEA, (*Recueil d'Observations de Zoölogie*, Humb. et Bonpland, p. 325), ought

to be connected with my second group; and which, uniting all the characters observed in the Tuns, ought naturally to take its place among them, under the name of *DOLIUM latilabre*. In the same work this author gives, under the name of *MALEA crassilabris*, a shell which I consider as a variety of the first; the only differences which this author himself has found, consist in the smallness of the shell, in the spire, which is a little more prominent, and in the thickness of the right lip, characters which appear to me too little specific, and too variable to determine its separation as a species. We shall find also in this series the *DOLIUM pomum*, which approaches exceedingly to the *DOLIUM latilabre* in the form of its aperture, in the ridges which exist upon the columella, and particularly in the right lip which is widened, and has, internally, folds, or very strongly prominent denticulations.

The animals of the Tuns are in general strongly colored, and painted with different tints which form bands and spottings upon their entire exterior. These animals are often found in rapid waters, and upon pebbly bottoms; their motions are quick. The species seen upon our coasts appear towards spring, and in summer: the other species inhabit warm climates.

A. *Species with the right lip always thin and undulated.*

1. **DOLIUM PERDIX**, LAM. *The Partridge Tun.*

(Collect. MASS. LAM.) LIST., Conch., t. 984, fig. 43.

Pl. V, fig. 9.

D. testâ ovato-oblongâ, inflatâ, tenui, fulvo-rufescente, maculis albis lunatisque seriatim notatâ; costis convexiusculis, confertis; spirâ exsertiusculâ, conicâ.

Shell ovate-oblong, ventricose, pretty thin, of a reddish brown color, pleasingly varied with white spots in transverse series, for the most part semi-lunar, and more or less distant; spire slightly projecting, conical, pointed, composed of from five to six whirls which are furnished with numerous ribs,

often widened, feebly convex, and separated by furrows hardly apparent; suture very distinct, slightly channeled towards the last whirl. The aperture is large, subovate, marked by transverse, slightly projecting bands, which correspond to the furrows of the exterior. The interior of this cavity is of a fawn color. The right lip is thin, everted, a little undulated, and adorned with a white band the whole length of its interior, with the exception of the edge, which is of a deep brown. The left lip is spread out over the body of the shell; it is very thin, transparent, and terminated below by a projecting plate which covers the umbilicus, and seems also to form a part of it. The columella is smooth, polished, and forms at the left of the umbilicus a thick rib, marked by transverse striæ, which terminates at the emargination of the base.

Length 5 inches. Width  $3\frac{1}{2}$  inches.

Inhabits the Channel, the Mediterranean, the equatorial seas, the seas of India, of Africa, and of America.

This shell is remarkable on account of its form, being generally more elongated than that of other species, and particularly by its coloring, which makes the transverse ribs to appear as if enameled with small white spots, for the most part curved in the form of a crescent.

The mollusk of this shell inhabits rapid waters, and appears pretty quick in its movements. The ground of its color is a bluish white, covered with irregular spots of a red brown, bordering upon the violet. The foot is colored in the same manner beneath, but above, it is furrowed with wide triangular radiating bands. The tentaculæ are doubly ringed with brown.

2. **DOLIUM OLEARIUM**, LAM. *The Onion-Peel Tun.*

(Collect. MASS. LAM.) RUMPH., MUS., t. 27, fig. D.

Pl. I, fig. 1.

D. testâ ovato-globosâ, ventricosâ, tenui, fulvo-rufescente; costis latis, complanatis, sulco impresso separatis; anfractibus propè suturas canaliculatis.

Shell pretty large, ovate-globose, ventricose, thin; spire conical, formed of six convex, very distinct whirls, loaded externally with wide, flat, slightly raised ribs, separated by narrow and superficial furrows. The whirls of the spire are isolated by a deep channeled suture. The lower whirl rounded and very ventricose. The aperture is large, subovate, colored interiorly with reddish, and marked with transverse ribs corresponding to the furrows without. The right lip is dilated, undulated, tinged with black, or a deep brown upon the edge. The left lip is whitish, spread out in a very thin plate upon the belly of the lowest whirl. The columella is similar to that of the preceding species. The external surface of this shell is of an uniform reddish fawn color; nevertheless the ribs are varied with wide spots or irregular brown and white blotches which are very remarkable.

Length 5 inches. Width 4 inches.

Inhabits the Indian Ocean, and the Antilles.

This species, very common in collections, is almost diaphanous when young; at that time the transverse ribs of the surface are only indicated by lines of a slightly deeper tint. The Latin name which has been given it, is derived from the use to which it is subservient in some countries: it serves as an oil-dipper.

The animal is of a clear brownish red, without spots, and its tentaculæ are encircled, towards the point, with a wide reddish-brown ring. The foot beneath is of a dark violet, with the edge embroidered with deep brown.

3. **DOLIUM GALEA**, LAM. *The Fluted Tun.*

(Collect. MASS. LAM.) LIST., Conch., t. 898, fig. 18.

Pl. II, fig. 2.

D. testâ maximâ, ovato-globosâ, ventricosissimâ; umbilicatâ, tenui, albido-fulvâ; costis convexis, anteriùs alternis minoribus; anfractibus propè suturas incurvato-excavatis, canaliculatis.

Shell often very large, ovate-globose, pretty light, very ventricose, ridged transversely with numerous convex ribs, alternated by other smaller ribs, which only appear upon the two upper thirds; the furrows which separate them are very distinct. Suture channeled; spire slightly raised, formed of six rounded convex whirls; the lower one forms, of itself, almost the whole of the shell. The aperture, very large, of a clear fawn color within, exhibits smooth tranverse ribs, the first seven or eight of which, are united two and two. The right lip is white, terminated by a festooned dilatation, and sometimes excavated by a shallow canal. The left lip, when apparent, consists only of a scale-like leaf. The columella is twisted, and elongated spirally; it is projecting, marked externally with five or six longitudinal ribs, and continued to the emargination. The whole surface of the shell is of a pale fawn-color, intermingled, upon some specimens, with light brown or chestnut tints. Epidermis very thin and brown.

Length 6 inches. Width  $4\frac{1}{2}$  inches.

Inhabits the Mediterranean, about the coasts of France, and of Corsica; and the Adriatic.

It is this species particularly, among the Tuns, which acquires such magnitude, that specimens have been quoted of the size of a man's head. It is found in calcareous, and sometimes on slightly muddy bottoms. It is generally observed upon coasts, like the preceding, at the approach of spring or of summer.

4. **DOLIUM MACULATUM**, LAM. *The Speckled Tun.*

(Collect. MASS. LAM.) LIST., Conch., t. 899, fig. 19.

Pl. III, fig. 4.

D. testâ ovato-globosâ, ventricoso-inflatâ, tenui, griseolâ; costis convexis, distantibus, fulvo aut rufo maculatis; interstitiis striâ prominulâ divisis.

Shell ovate-globose, ventricose, thin; spire generally short, composed of six whirls, slightly flattened above; the last, very large and very convex. All these whirls are encircled by wide and distant ribs, slightly convex, ten in number upon the last whirl; others, more narrow, are placed alternately within the furrows, which are wide and very slightly striated. The surface of this shell is of a white color, slightly grayish, and sometimes rose-colored; ornamented upon the ribs, with alternate white and red spots, often also orange, which, disposed thus in regular series, present a beautiful appearance. The aperture is very large, colored within of a chestnut tint. The right lip is thin, notched, canaliculated within, and its edge is white and undulated. The left lip is only slightly perceptible towards the base, where it forms a part of the umbilicus, which is hardly developed. The columella is twisted spirally, and furnished externally, even to the emargination of the base, with longitudinal ribs.

Length 5 inches. Width  $3\frac{1}{2}$  inches.

Inhabits the Indian Ocean, the coasts of Coromandel, of Ceylon, and the western coast of Africa.

The common name of this species, is the *Tun*; it is very large. Its ribs, wide and distant, its furrows equally wide, render it easily distinguishable.



5. **DOLIUM VARIEGATUM**, LAM. *The Variegated Tun.*

(Collect. MASS. LAM.)

Pl. II, fig. 3 et 3 a, young.

D. testâ ovato-globosâ, ventricosâ, umbilicatâ, tenui, albo et rufo variegatâ; costis convexis, confertis, aliis albis rufo-maculatis, aliis rufis; spirâ brevi.

Shell ovate-globose, ventricose, thin; spire composed of six convex whirls, slightly separated by a shallow suture, and loaded with transverse rounded ribs, which are very approximate. The lower whirl composes, itself, almost the whole of the shell; twenty to twenty-six transverse ribs may be counted upon its surface, among which, in old specimens, are found other smaller ones which are alternately disposed between the first, towards the most elevated part. All the ribs are separated by furrows which are not throughout of the same size. The aperture is wide, large and ovate; its lips are white, and the interior reddish. The right lip, terminated by a scolloped dilatation, is traversed by a canal of no great depth. The left lip is white, thin, applied to the body of the lower whirl, and forms a part of the umbilicus. The columella is twisted spirally. The coloring of the exterior is whitish, varied with red, and covered, upon the transverse ribs, with irregular spots which sometimes form longitudinal or zigzag bands of a deeper color. The epidermis is thin and reddish.

Length 4 inches. Width 3 inches.

Inhabits the Indian Seas, the Isle of France, the shores of Ceylon, and of New Holland.

This species is somewhat allied to the *DOLIUM maculatum*, but its small chords or ribs, very approximate to each other, distinguish it materially from this last shell. Upon some specimens are observed ribs which have no other tint of coloring than the ground of the shell. Young specimens are diaphanous and slightly colored by spots.

B. *Species with the right lip more or less thickened into a margin, and pretty strongly denticulated.*

6. **DOLIUM FASCIATUM**, LAM. *The Banded Tun.*

(Collect. MASS. LAM.) SEBA, MUS. 3, t. 68, fig. 17.

Pl. III, fig. 5; et Pl. IV, fig. 6, var.

D. testâ ovato-ventricosâ, tenuiusculâ, albâ, fasciis quatuor fulvo-rufis versùs labrum evanidis cinctâ; costis convexo-planis, plerisque confertis, supremis remotiusculis; labro intùs dentato, extùs marginato.

Shell ovate, ventricose, thin, whitish, with four or five distinct bands of a reddish fawn-color, rarely continued to the right lip; there is only one upon the two whirls next above the lowest. The spire is brown at top, and is formed of six convex whirls, encircled by projecting, pretty narrow, equal, approximate, flattened ribs, a little more distant towards the upper part; they are separated by shallow furrows. Two of the upper whirls are chequered as it were by intersections of striæ. Suture a little flattened, and slightly channeled. The aperture is ovate, white, colored with red at the bottom. The right lip is arcuated, and presents externally a projecting margin, which is crenulated outwardly by the jutting of the ribs, undulated externally, and dentated within. The columella is twisted; and upon some specimens are observed several crenulations towards the base of the left lip which partially covers the umbilicus. The epidermis is thin and reddish.

Length 5 inches. Width 4 inches.

Inhabits the East Indian Seas.

This shell is very distinct from the preceding in the form of the right lip, which is thickened and denticulated, and in the distribution of the transverse fawn-colored bands which suddenly stop within a third of the breadth of the shell without reaching the edge. Some specimens of the same species, which appear

to belong to females, are more ventricose; the right lip is less thickened, the teeth situated within are less apparent, whilst, on the contrary, those which are found upon the edge, are very distinctly seen, particularly towards the base.

A variety of this species, which we have represented, pl. IV, fig. 6, does not exhibit teeth at the inner edge of the right lip, nor brown bands upon the convexity of the whirls. The transverse ribs are also more distant in this specimen, particularly towards the upper part of the two lower whirls, which is caused by the almost total disappearance of the second rib at that part, which leaves only a slight indication of coloring.

7. **DOLIUM POMUM**, LAM. *The Helmet-formed Tun.*

(Collect. MASS. LAM.) LIST., Conch., pl. 792, fig. 45.

Pl. V, fig. 8.

*D. testâ ovato-inflatâ, crassiusculâ, albâ, luteo-maculatâ; costis convexiusculis, latis, confertis; spirâ brevi; aperturâ coarctatâ, utrinquè dentatâ; labro crasso, extûs marginato.*

Shell ovate, inflated, somewhat thick, of a whitish color, varied and spotted with square spots, of a yellow more or less reddish, alternating upon the transverse ribs, with other spots of a dull white; spire short, composed of six convex whirls, slightly flattened above, banded with ribs equally convex, wide, not distant, and divided by narrow, shallow furrows. The aperture is somewhat narrow, toothed upon both edges, colored yellow within. The right lip, dilated, particularly towards the base, forms externally a very thick convex margin, the external part of which is sharp, undulated, and its internal surface furnished with ten or twelve transverse, distant teeth, resembling folds. The left lip consists of a smooth plate, convex and white, which partially covers the body of the shell. The columellâ presents a pretty deep emargination, above which are observed several transverse thick folds, and some others, less numerous, more oblique, and less distinctly marked.

Length 3 inches. Width 2 inches.

Inhabits the Indian Ocean, towards the coasts of Ceylon, and the Antilles.

This shell, like the following, appears removed from the preceding species by the contraction of its aperture, and particularly by the transverse folds with which the columella is provided; but these very differences appear to indicate the two as proper to form the transition from the *DOLIUM* to the *CASSIS*, which they approach, not having their abruptly raised canal, whilst they, at the same time, in all other respects, are allied to the *Tuns*.

The animal, which has been examined by Quoy and Gaimard, presents the peculiarities of development which we have pointed out in our type species; only the foot is neither dilated, nor auriculated before. The color of this mollusk is of a beautiful white, marked upon its circumference with triangular flames of a violet brown; the tentaculæ are long, slender and pointed, spotted with brown, in the form of triple rings; the trunk is white, the tube very long, pointed with brown and violet at its extremity.

8. *DOLIUM LATILABRE*, NOBIS. *The Broad Lipped Tun.*

(Collect. MASS.) WOOD. *Ind. Test.*, suppl. pl. 4, fig. 1.

Pl. IV, fig. 1.

*D. testâ, ovato-globosâ, crassiusculâ, albidâ, longitudinaliter striatâ; costis latis, complanatis, sulco impresso separatis; labro dextro arcuato, dilatato, reflexo, dentibus, sulciformibus remotis; columellâ duobus tuberculis sulcatis, sulco impresso separatis, ornatâ.*

Shell ovate-globose, ventricose, pretty thick; spire pointed, formed of six whirls, the upper of which are slightly convex, but little developed, having three or four transverse striæ, very apparent, and spotted with brown blotches; the lower whirl is very much inflated, completely surrounded by from fifteen to twenty equal ribs, depressed, but slightly rounded;

these ribs are separated from each other by a shallow furrow, which becomes wider between the first two or three upper ribs, by the disappearance of the intermediate ribs. The longitudinal striæ of growth are numerous, very fine, and slightly apparent. The aperture is narrow, for it is much contracted by two protuberances situated upon the two lower thirds of the columella. The right lip is arched, flattened, widened within, having a wide longitudinal ridge outside of it; it has, on the inside, the whole length, from sixteen to eighteen ridges, or very strongly prominent teeth. The edge is undulated and denticulated. The left lip is thin, diaphanous, spreading upon the body of the shell, to which it adheres, except towards the base, where it becomes free and thicker. The columella is twisted, and presents a very deep emargination, above which is seen a wide, thick, furrowed tubercle, which appears as if suspended over this hollow; another tubercle projects near the base, separated from the first by the cavity just spoken of; it is furnished with wrinkles and numerous furrows of a brilliant white, which imperceptibly diminish in size at the base, and above the emargination, which is turned out like a gutter, and perfectly smooth. The color of this shell is whitish, slightly blended with a dull yellow. The interior is red. The epidermis is thin and yellowish.

Length 5 inches. Width 4 inches.

Inhabits the South Sea, the Pacific Ocean, the coast of Mexico, at Acapulco.

This shell, which becomes often very large, and which is still quite rare in collections, is that which Valenciennes has described under the name of *MALEA latilabris* (*Recueil d'Observations de Zoologie*, Humb. et Bonpl. p. 325). It is exceedingly remarkable for the development of the right lip, which is wide and provided with strong teeth throughout its whole length. The form and the situation of the two tubercles which project from the columella are also very singular, and concur to

render the aperture of the shell narrower than in the preceding species. I think that the *MALEA crassilabris* of the same author, described also in the same work, is only a variety of the shell in question. It evidently presents all its characters, excepting some slight distinctions of little importance: it is a little smaller; the spire is a little more developed, and the right lip thicker.

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DIVISION OF THE TUNS INTO TWO GROUPS.

A. *Species with the right lip always thin and undulated.*

D. perdix, Lam.	The partridge tun.
— olearium, Lam.	— onion-peel tun.
— galea, Lam.	— fluted tun.
— maculatum, Lam.	— speckled tun.
— variegatum, Lam.	— variegated tun.

B. *Species with the right lip more or less widened by the margin, and pretty strongly denticulated.*

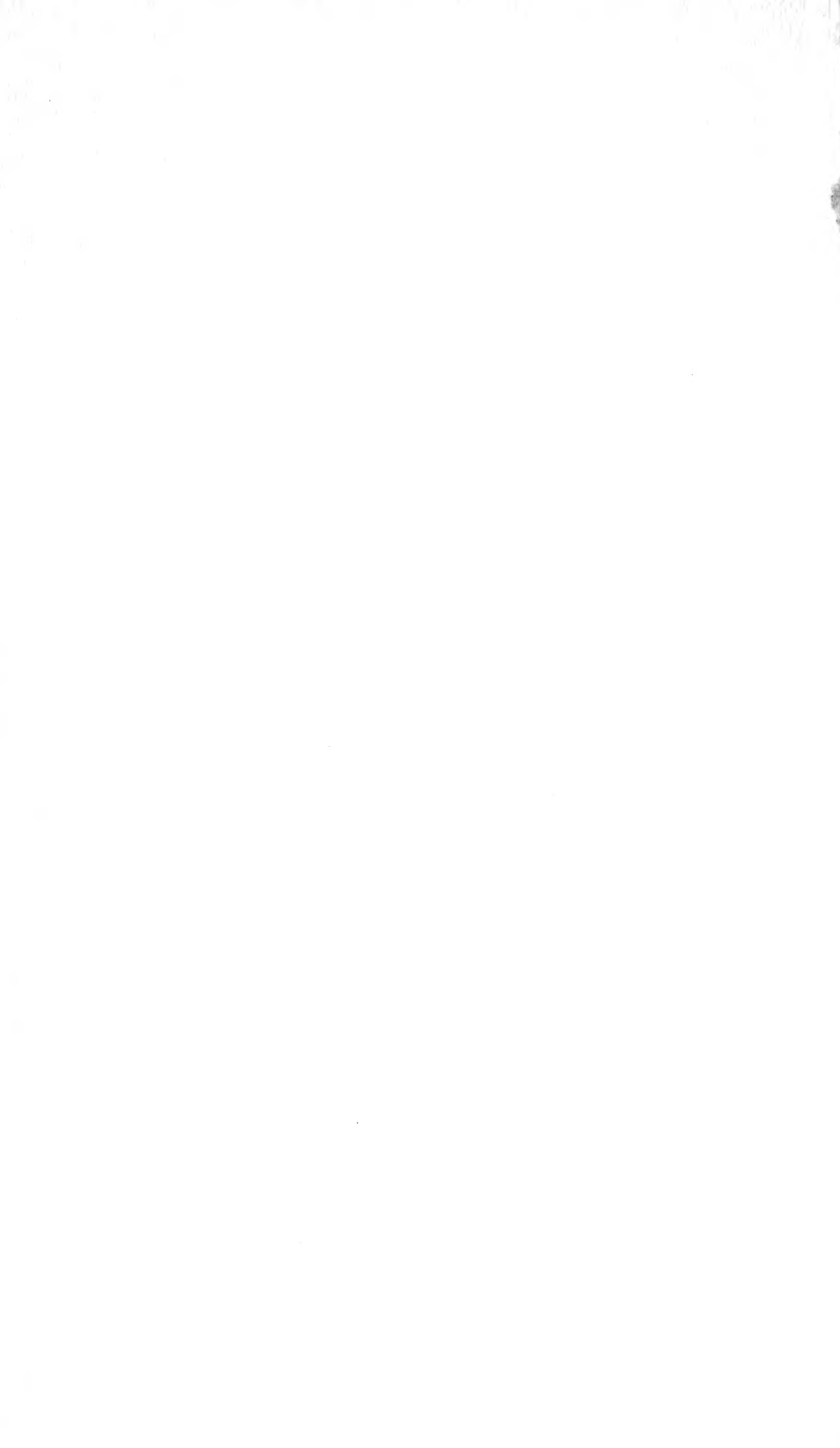
D. fasciatum, Lam.	The banded tun.
— pomum, Lam.	— helmet-formed tun.
— latilabre, Nobis.	— broad lipped tun.













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